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ABSTRACT

This report was compiled to serve as a partial knowledge base for the Southeastern Educational Laboratory and the Harlem Research Center in their effort to plan a research program in early education. Educational programs designed for 3-, 4-, and 5-year-old children which emphasize either cognitive-intellectual development or language development are briefly reviewed and compared. The text is organized into six major sections: (1) a selection of major references in the general area of early education and of key references to establish a rationale for focusing on the cognitive-intellectual and language skills in early education for economically disadvantaged children, (2) outlines of 18 programs for which a written curriculum exists and which have been evaluated empirically, (3) abstracts of six comparative research projects on curriculum, (4) outlines of six developing programs, (5) outlines of 17 effective curriculum components and ideas and (6) implications of the reviews. Bibliographic references are included along with two appendixes. Appendix A contains abstracts of research relating to specific preschool programs. Appendix B lists addresses of preschool programs or authors. This document previously announced as ED 045 209. (WY)

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AN OVERVIEW OF COGNITIVE AND LANGUAGE PROGRAMS FOR 3, 4, & 5 YEAR OLD CHILDREN

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PREFACE

This report is a descriptive overview of selected educational programs for three-, four-, and five-year-old children. The purpose of the overview is to serve as a partial knowledge base for the Southeastern Educational Laboratory and the Harlem Research Center to plan a research program in early education. Using the guidelines of the Southeastern Educational Laboratory, only programs which focused on either cognitive-intellectual development or language development were included. Two additional criteria were employed in program selection: the program must be developed to the point that a written "curriculum" exists and the program must have been evaluated empirically.

The overview has certain limitations: it is only a brief overview of the programs and the reader must refer to the original references to obtain a sophisticated understanding of the individual programs; the overview is based on printed material available to the reviewers prior to January 31, 1970; and it is beyond the scope of this paper to integrate the various approaches to early education.

Finally, the overview is organized into six major sections: (1) a selection of the major references in the general area of early education, and of key references to establish a rationale for focusing on the cognitive-intellectual and language skills in early education for economically disadvantaged children, (2) outlines of the major programs, (3) abstracts of six comparative research projects on curriculum, (4) outlines of developing programs, (5) outlines of effective curriculum components and ideas, and (6) the implications of the review.

TABLE OF CONTENTS

	PAGE
INTRODUCTION.	1
Perspectives in Early Education.	1
Rationale for Focusing on Cognitive and Language Skills	
PRESCHOOL PROGRAMS.	5
Adkins, D. University of Hawaii Preschool Language Curriculum	7
Bereiter, C., & Engelmann, S. Academically-Oriented Preschool.	12
Conner, F. P., & Talbot, M. E. Curriculum for Young Mentally Retarded Children.	17
DARCEE (Demonstration and Research Center for Early Education	20
Durham Education Improvement Program	24
Educational Testing Service. Prekindergarten, Kindergarten, and First Grade Programs.	32
Hodges, W. L., McCandless, B. R., & Spiker, H. H. Diagnostically Based Curriculum.	35
Kamii, C., & Radin, N. Ypsilanti Early Education Program	39
Karnes, M. B., Hodgins, A. S., & Teska, J. A. Ameliorative Preschool Program.	45
Nimnicht, G., McAfee, O., & Meier, J. The New Nursery School.	50
Palmer, F. Early Intellective Training.	52
Peabody Language Development Kit (Levels #P and #K).	56
Pennsylvania Preschool and Primary Education Project	61
Robison, H. Project Child (Curriculum to Heighten Intellectual and Language Development	69
Sapon, S. M. Verbal Behavior Laboratory	74
Smilansky, S. Kindergarten to Promote Cognitive Abilities	76
Sprigle, H. A. Learning to Learn Program.	78
Weikart, D. Cognitively Oriented Ypsilanti Preschool	84

PAGE

COMPARISONS OF PRESCHOOL PROGRAMS. 89

Day, D.E. Effects of Different Language Instruction. 91
1. Bereiter-Engelmann language program
2. Traditional

DiLorenzo, L. T., Salter, R. T., & Brady, J. J. Prekindergarten Programs for the Disadvantaged. 93
1. Reading readiness materials program
2. Bereiter-Engelmann language program
3. Teaching machines programmed for language instruction

Karnes, M. B., Hodgins, A. S., Teska, J. A. & Kirk, S. A. Effects of Five Preschool Interventions. 95
1. Traditional
2. Community-Integrated
3. Montessori
4. Ameliorative (Karnes)
5. Direct-Verbal (Bereiter-Engelmann)

Miller, L. A. Experimental Variations of Head Start Curricula. 98
1. Montessori
2. Bereiter-Engelmann
3. DARCEE
4. Traditional

O'Piela, J. Pilot Study of Five Methods of Presenting the Summer Head Start Program . . . 99
1. Head Start with experience record
2. Frostig
3. Delacato
4. Bereiter-Engelmann

Weikart, D. P. Comparative Study of Three Preschool Curricula. 101
1. Unit-Based (Traditional)
2. Cognitively Oriented (Weikart)
3. Language Training (Bereiter-Engelmann)

DEVELOPING PRESCHOOL PROGRAMS. 103

Aaron, R. L. Preschool Stimulation Project . . . 105

Appalachian Educational Lab, Early Childhood Education 106

PAGE

Nurseries in Cross-Cultural Education, San Francisco. 113
Preschool Curriculum, Oakland, California 117
Southwest Educational Development Laboratory, Early Childhood Education Learning System. . . 119
Stern, C. Preschool Language Project 121

CURRICULUM COMPONENTS AND IDEAS. 123

Alexanian, S. Teacher Developed Preschool Language Training Program. 126
Blank, M. Individual Teaching for Abstract Thinking 127
Blank, M. A Methodology for Fostering Abstract Thinking 130
Children's Television Workshop. 133
Coffman, A., & Dunlap, J. M. Personalized Programming of Prekindergarten Children. . . . 136
Deutsch, M. The Deutsch Model. 139
Early Childhood Education Curriculum Guide, Oak Ridge, Tennessee 143
Engel, R. C. Language Development Experiences for Young Children 144
Engelmann, S. Teaching Formal Operations 146
Fowler, W. Designing Learning Programs for Disadvantaged Children 148
Hart, B. M. & Risley, T. R. Establishing Use of Descriptive Adjectives 149
Ireland, V. M., & Cox, F. M. Preschool Programs, Atlanta Public Schools 151
Locatis, F., & Smith, F. A. Instructional Concept Program. 153
Long, E. R., Jr. Programmed Instruction. 155
Parker, R. K. Learning in Children: Classification 158
Stendler, C. A Piaget-Derived Model for the Preschool Child. 160
Universal Education Corporation, Discovery Program. 161

IMPLICATIONS OF REVIEW 163

REFERENCES 168

PAGE

APPENDIX A: ABSTRACTS OF RESEARCH RELATING TO SPECIFIC PRESCHOOL PROGRAMS. 184

APPENDIX B: ADDRESSES OF PRESCHOOL PROGRAMS. . . . 200

INTRODUCTION

Perspectives in Early Education

The sixties produced a few important books in early education which provide one with an accurate picture of the range of research activities focusing on the preschool child and particularly the economically disadvantaged child. The following books and monograph represent the best general sources of information:

Frost, J. L. Early childhood education rediscovered. New York: Holt, 1968.

Hellmuth, J. (Ed.) Disadvantaged child. Volume I. Seattle: Special Child Publications, 1967.

Hellmuth, J. (Ed.) Disadvantaged child. Volume II. Seattle: Special Child Publications, 1968.

Hess, R. D. and Bear, R. M. Early education. Chicago: Aldine, 1968.

LaCrosse, R. E., Lee, P. C., Litman, F., Ogilvie, D. M., Stodolsky, S. S., and White, B. L. The first six years of life: a report on current research and education practice. Genetic Psychology Monographs, 1969.

Rationale for Focusing on Cognitive and Language Skills

Contemporary research is replete with examples of studies which describe children from economically deprived areas as inferior to their advantaged peers on numerous measures of general intelligence, cognition, and language skills.

Only key references will be cited for the interested reader. Schaefer and Furfey review the literature concerning the intellectual development of the infant from 15 months to 30 months in their "informal progress report" entitled "Intellectual Stimulation of Culturally-Deprived Infants

During the Period of Early Verbal Development." Kennedy (1969) and his colleagues clearly document the difference between black and white children's scores on the Binet intelligence test. In the cognitive area, Sigel and Olmsted (1967) report that children from low SES families are concretistic in their thought rather than conceptualistic; additionally, these children have trouble dealing with representational material (Sigel & McBane, 1967).

John (1963) describes one of the low SES child's problems as using language for communication but not as a tool for reflective and introspective thought. Moore (1969) indicates in tabular form a summary of observed language differences between low SES children and middle SES children and the names of the investigators who have identified these differences.

The following materials represent selected publications which provide (1) clear documentation of the class and/or race differences and (2) review some of the theoretical and empirical issues:

Intelligence

Bloom, B. Stability and change in human characteristics. New York: Wiley, 1964.

Hunt, J. McV. Intelligence and experience. New York: Ronald Press, 1961.

Rich, B. Position Paper: Intelligence. Harvard Pre-School Project, Cambridge, Massachusetts, May, 1967.

Cognition

Allaman, J. Cognition: Position Paper. Harvard Pre-School Project, Cambridge, Massachusetts, March, 1967.

Gray, S. and Miller, J. Early experience in relation to cognitive development. Review of Education Research, December, 1967.

Perspectives on human deprivation: Biological, psychological, and social. U. S. Department of Health, Education and Welfare, the National Institute of Child Health and Human Development, 1968.

Stern, C. Problem solving and concept formation: an annotated bibliography. Southwest Regional Laboratory for Research and Development, Inglewood, California.

Language

Brottman, M. A. (Ed.) Language remediation for the disadvantaged preschool child. Monograph of the Society for Research in Child Development, Volume 33, No. 8, 1968.

Cazden, C. B. Subcultural differences in child language. Reprint No. 7, Harvard R & D Center on Educational Differences.

IRCD Bulletin, Language Development in Disadvantaged Children, Volume 1, No. 5, 1965.

John, V. P. and Moskovitz, S. Language acquisition and development in early childhood. Chapter VI for the 1970 NSSE Yearbook. Chicago: University of Chicago Press (in press).

Meader, M. B. Position Paper: Language development. Harvard Pre-School Project, Cambridge, Massachusetts, December, 1967.

Moore, D. R. A thesis proposal: A comparison of two methods of teaching specific language skills to lower class preschool children. Harvard Graduate School of Education (unpublished paper), 1969.

General

Bereiter, C. and Engelmann, S. Teaching disadvantaged children in the preschool. Englewood Cliffs, New Jersey: Prentice-Hall, 1966.

Deutsch, M., Katz, I., and Jensen, A. R. Social class, race, and psychological development. New York: Holt, 1968.

Hillery, M. C., Lingren, R. H., and Remsted, R. C. A descriptive study of cognitive and affective trends differentiating selected groups of preschool children. University of Wisconsin, Office of Economic Opportunity Grant #1401, 1969.

Given these differences in language, cognitive and intellectual skills as a function of SES, it is clear that two courses of action are open: (1) to try to prevent these differences from occurring by starting the preschool program before the differences normally appear (between 15-20 months) and (2) try to remediate the deficits by intervening after the SES differences are present. Nationally, the movement is to begin preschool programs earlier and earlier. For example, Head Start originally was only a 6 week summer program prior to the first grade; now the Office of Economic Opportunity is establishing Parent-Child Centers for mothers and infants.

If a program begins at ages three, four or five, then the rationale offered by Bereiter and Engelmann (1966) of (1) limiting one's focus to a few areas and (2) trying to proceed at an above average pace seems very reasonable if remediation efforts are to have any chance of being successful.

PRESCHOOL PROGRAMS

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PRESCHOOL PROGRAMS

Preschool programs which emphasize cognitive-intellectual or language development in the child and have a written curriculum and empirical evaluation are outlined in this section.

Adkins, D. University of Hawaii Preschool Language Curriculum. 7

Bereiter, C., & Engelmann, S. Academically-Oriented Preschool 12

Conner, F. P., & Talbot, M. E. Curriculum for Young Mentally Retarded Children 17

DARCEE (Demonstration and Research Center for Early Education) 20

Durham Education Improvement Program. 24

Educational Testing Service. Prekindergarten, Kindergarten, and First Grade Programs 32

Hodges, W. L., McCandless, B. R., & Spiker, H. H. Diagnostically Based Curriculum 35

Kamii, C., & Radin, N. Ypsilanti Early Education Program. 39

Karnes, M. B, Hodgins. A. S., & Teska, J. A. Ameliorative Preschool Program 45

Nimnicht, G., McAfee, O., & Meier, J. The New Nursery School 50

Palmer, F. Early Intellective Training 52

Peabody Language Development Kit (Levels #P and #K) 56

Pennsylvania Preschool and Primary Education Project. 61

Robison, H. Project Child (Curriculum to Heighten Intellectual and Language Development. 69

Sapon, S. M. Verbal Behavior Laboratory. 74

Smilansky, S. Kindergarten to Promote Cognitive Abilities. 76

Sprigle, H. A. Learning to Learn Program 78

Weikart, D. Cognitively Oriented Ypsilanti Preschool. 84

Adkins, D.
University of Hawaii Preschool Language Curriculum

Orientation: The University of Hawaii Preschool Language Curriculum (UHPLC) was designed to attack the linguistic and cognitive deficiencies of children from low income families in Hawaii. The UHPLC reflects the influence of Bereiter and Englemann's language program. The Bereiter and Englemann language program was revised to teach basic syntactic patterns as well as words and phrases that occur with high frequency in standard dialects of English.

Population: Disadvantaged children from 16 Head Start classrooms on Oahu were used for the project. Eight classrooms used the UHPLC, while eight others followed a variety of nursery school programs and served as comparison groups.

Curriculum: The curriculum was designed to foster the development of cognitive skills using language as the vehicle. It teaches the child to use language as a tool for functional communication, thinking, and problem solving, and generally provides him with a framework for categorizing his world symbolically.

Method: "The curriculum was mimeographed and assembled as a manual that contains a carefully sequenced series of grammatical structures and is presented to the children

in small increments. Mastery of the material is reinforced through operant procedures on a variable schedule (p. 4). Also, semi-structured, language-supporting activities, which focus on extending the child's vocabulary and on strengthening the concepts presented in structured lessons, have been integrated into the manual. Supplementary language-based sensori-motor activities (physical) constitute another section of the manual. The three components of the daily plan were the language lesson, the language-strengthening activities, and the physical activities.

Assessment Indices:

1. Illinois Test of Psycholinguistic Abilities
2. Peabody Picture Vocabulary Test
3. School Readiness Tasks

Results:

1. Analysis of the total ITPA and PPVT revealed no significant differences between UHPLC groups and the regular Head Start groups.
2. The adjusted mean score on the SRT (included only 16 items relevant to experimental treatment) for the experimental group was significantly higher than the adjusted mean for the comparison group.

Delivery: Parent Education Program was introduced based on the assumption that the parents' teaching style influences the child's cognitive development.

"Intensive contact between parent education staff and parents was carried out during the early part of the school year in response to the need of the teachers to have parents trained to work in the classroom as volunteers. An intensive workshop met for one and one-half hours on four consecutive days for each of the eight classes in five different Centers. Emphasis in the meetings planned by the staff was placed on training the parents to be helpful in supervising classroom activities, translating the classroom curriculum to the parents, and developing positive attitudes toward school. In later, less frequent sessions the parents were encouraged to assume a teaching role in their relations with their own children. Instructional materials that were

used in the classroom were presented and interpreted to the parents in such a way that they could be adopted for use at home. A variety of films and slides was presented and discussed. Another technique frequently applied was role-playing.

"Parent attendance dropped appreciably in all the Centers after the well-attended orientation sessions. Some parents forgot the semi-monthly meeting dates or were forced to miss sessions because of family illness or clinic appontments. Lacking satisfactory group cohesiveness, the staff designed three different experimental parent programs in the five Head Start Centers in an attempt to find one that would attract parents and sustain their interest:

(1) At the beginning of the spring semester the team held six intensive sessions over a two-week period at three Head Start Centers, and attendance increased as predicted. Several factors contributed to this improvement: specifically, daily meetings that sparked a feeling of momentum and accomplishment; concrete reinforcers (one piece of stainless steel flatware per parent per session) and individualized Certificates of Participation for attendance at five of the six concentrated workshop sessions.

(2) Another preschool parent group was divided into three smaller groups; two groups met in homes of the parents and the third group continued to meet at the Head Start Center. One staff member met with each group. The home meetings were not characterized by greater attendance in general.

(3) Three mothers from another group were trained to act as interpreters of content presented to them and then to inform other parents. The hope that attendance would be increased by absence of staff members did not materialize.

"Another deviation from the original plan evolved in the manner in which the meetings were conducted. It was easier to set the stage for dialogue with two staff members working together than in the more traditional situation with one leader per group. Therefore, following the initial introduction of all three members of the staff to each group to permit more flexible scheduling, two participated at all regular meetings.

"Subjective evaluation reveals that some techniques were notably more effective than others, namely, team-teaching, role-playing, and using concrete reinforcers.

"Team-teaching (having two parent educators lead discussions) established a pattern of dialogue that encouraged parents to join in rather than to passively sit and listen to a lecture. Role-playing produced an informal, active learning situation. The staff never took the role of a teacher (expert), but instead took the role of a child learning, a child with a problem, a mother attempting to teach, or a mother struggling with a problem. When a staff member played the role of a mother teaching her child, she didn't attempt to do a perfect demonstration. She wanted parents to look critically at the demonstration and evaluate it, and to perceive an atmosphere for learning that not only permitted mistakes but expected them. Concrete reinforcers, such as food and a Certificate of Participation, were the most effective of the reinforcers used.

"On the basis of this year's experience, the staff recommends that parent education workers should visit the classrooms occasionally and become acquainted with each community. Specific suggestions include: (1) taking pictures of each parent and child immediately to speed up identification process; (2) devising an instrument to ascertain what are the most effective reinforcers for the parents; (3) devising an instrument to pinpoint parents' attitudes regarding aspects of the program."

Comments: The disappointing results of this study reflect the need for the development of improved instrumentation for dependent variables. Measures which specifically reflect the improved verbal skills of children need to be defined and standardized.

Information on the contents of a summer training course for teacher and teacher aids is available in Adkins, D. et al. (1967).

References:

Adkins, D. et al. "Preliminary Evaluation of a Language Curriculum for Preschool Children. Final Report." Head Start E & R Center, 1967.

Adkins, D. "Development of a Preschool Language-Oriented Curriculum with a Structured Parent Education Program. Final Report." Head Start E & R Center, 1968.

Bereiter, C. and Englemann, S.
Academically-Oriented Preschool

Orientation: In the final report of a research program designed to "explore the potentialities of acceleration and enhancement of early intellectual development," Bereiter states (in reference to his project application):

"... I think I was conscious at the time that children become smarter through learning things, and therefore 'techniques of accelerating cognitive development' had to involve ways of teaching young children things they didn't already know and that would be of some use to them in subsequent learning. The implications of this view lead straight to pedagogy.

"However uncertain the rationale, it is the case that, instead of setting out to stimulate intellectual growth in some general fashion, we attempted from the start to teach children various concepts and skills that we thought might be important." (Bereiter, 1967, p. 2)

During the course of six exploratory studies, Bereiter and his associates "lost interest" in general and ambiguous goals, like cognitive development and stimulation, and became concerned with particulars: "... if we ask the question, 'How much can the intellectual development of young children be accelerated?', the answer suggested by these studies is that there is no answer. If instead the question asked is 'Can children be taught such-and-such specific thing?', the answer is very likely to be yes." (Bereiter, 1967, p. 121) Not only did Bereiter find that teaching for specific knowledge was more profitable than teaching for cognitive development, but he also found direct verbal instruction was both effective and extremely flexible.

Thus in his preschool program Bereiter was concerned with teaching specific tasks, each justified by its instrumentality or instrinsic worth. These carefully specified learning tasks were then taught by direct verbal instruction. The first experimental group to receive this instruction was a group of four-year-old disadvantaged children. The "working assumption was that disadvantaged children differed from others only in what they had and had not learned previously, so that an effective compensatory education program could be designed simply

by starting at a lower level of presumed initial knowledge and moving more rapidly and efficiently, thus enabling the children to catch up to others whose initial levels of knowledge were higher." The children were taught in the areas of language, arithmetic, and reading specifically to determine what the limits of attainment might be.

Population: The Ss were 15 four-year-old children from a predominantly Negro lower-class community in Champaign-Urbana, Illinois. All children were from "culturally deprived" homes. To be accepted into the preschool, each child had to make an intelligible verbal response during an initial screening test -- the Auditory-Vocal Automatic and the Auditory-Vocal Association subtests of the ITPA. No control group was used, since only children with a poor prognosis were included in the program and bringing the children up to normal on the assessment indices was considered to be a reasonable short-term criterion of success.

Curriculum:

Language -- The language component was based on three principles: (1) it was focused only on the minimum essentials -- a basic English which provides a means of teaching other concepts; (2) concepts were grouped on the basis of the rules which governed their manipulation; and (3) efforts were made to maximize the number of monitored responses made by the child. The language program began by teaching the basic identity statement, "This is a ____" and "This is not a ____", moved to "This ____ is ____" and "This _____ is not _____" and plural variations (using polar sets, non-polar sets, and sub-class nouns), and then included active verbs, common tenses and personal pronouns. If-then type statements using all, only, some and or comprised the remainder of the language program.

All of these steps, arranged hierarchically, were presented in a manner requiring successively more difficult responses from the child: verbatim repetition, yes-no questions, location tasks, statement production, and deduction problems.

Arithmetic -- Arithmetic was taught as a "science of counting." After counting was taught, equations were used throughout the program as statements of fact and as instructions that tell how the fact can be established through a counting operation. Addition, multiplication, subtraction and division (expressed by fractions) were taught. Pattern drill was used here as it was in the language component. Specifically, drill was used to teach the "plus zero" rule, the "plus one" rule, and the operation for working up from a given number-plus-zero to the given number-plus-a-given-addend. Concrete demonstrations were used to illustrate the validity of the rules.

Reading -- Initially, the vocabulary was restricted to three-letter consonant-vowel-consonant patterns and only case letters were used. Six rules, concerning the beginning, end, and sound of these words, were taught. To apply the rules, a child was required to learn the implied visual discriminations ("look the same") and auditory discriminations ("sound the same"). Learning the rules and sound values of the alphabet comprised the readiness phase of reading instruction. A conventional phonic approach was then followed, using Bloomfield and Barnhardt's Let's Read (1961) to provide spelling patterns.

Other activities -- Identification of colors (those of the fruit punch) and songs which provided practice in language operations (use of singulars and plurals, classification, reversal of elements in phrases) took place during time not concentrating on the three specific content areas.

Method: There were five children in each of three groups, and three teachers -- one for language, one for arithmetic, and one for reading. A fourth teacher worked remedially with the children when necessary. The three groups were stratified by level of performance, with shifts made in the groupings when necessary. The teacher directed the activities, and "the instructional sessions were represented to the children as work rather than play, the child's responsibility being to speak when called upon to do so, to 'try hard' to give the correct responses, and to refrain from diversionary

activities such as social play or running around the room."

In all three subjects the general instructional strategy was that of rule followed by application. Rote learning of a verbal formula was followed by its application to a series of analogous examples of increasing difficulty. Tasks were first presented in a highly structured form with a maximum of prompts, with the prompts systematically removed.

Children were rewarded by verbal praise and, during the first month, by cookies. Children were reprimanded for not following rules and were excluded from the instructional group for short periods of time if necessary. The child was informed if his responses were correct or incorrect, and incorrect responses were not rewarded. However, the child was rewarded for trying regardless of the correctness of his response.

Sessions were held for two hours a day, five days a week, for two years, and followed the following schedule:

10 minutes of free play
20 minutes subject-matter class
30 minutes toileting, snack, singing
20 minutes subject-matter class
20 minutes reading, discussion of stories
20 minutes subject-matter class

Assessment Indices:

1. Illinois Test of Psycholinguistic Abilities
2. Stanford-Binet
3. Wide-Range Achievement Test

Results: The child's ability to use grammatical inflections was measured by the Auditory-Vocal Automatic subtest of the ITPA. This subtest was the one most directly related to the children's instruction, for many exercises had dealt with the production and comprehension of grammatical inflections. At the beginning of the program, the average score for this group was 18 months below average. By the end of Year 1, six children were scoring above age level, and only three children were more than a year below average. During the second year, little additional progress was made.

On the Auditory-Vocal Association subtest (a verbal analogies test) only one child scored up to age level at first testing, but by the end of the second year the group as a whole was approximately up to average. The Vocal-Encoding subtest (involving divergent use of language) revealed an increase from three to nine children responding at or above age level. Gains were also made on the auditory decoding subtest (vocabulary test). As a whole, the ITPA scores rose from one to one-and-half years below average to approximately average scores. (However, it is pointed out, the children fell short of the level of sophistication in the logical use of language shown by middle-class children.)

The mean Stanford-Binet I.Q. rose from the low 90's to slightly over 100. (In mental age, scores rose from 6 months below average to four months above average.)

After the preschool year, children scored at the beginning first-grade level in reading and at the beginning second-grade level in arithmetic. By the end of kindergarten, an average of mid-first-grade level in reading and mid-second-grade level in arithmetic had been reached.

It was pointed out that scores on tests having clearly identifiable content reflected the amount of emphasis given to that content.

References:

Bereiter, C. Acceleration of intellectual development in early childhood. Final Report. University of Illinois, Contract No. OE 4-10-008, Office of Education, 1967.

Bereiter, C. and Englemann, S. Teaching Disadvantaged Children in the Preschool. Englewood Cliffs, N. J.: Prentice Hall, 1966.

Bereiter, C. and Englemann, S. Language learning activities for the disadvantaged child. New York: Anti-Defamation League of B'nai B'rith.

Conner, F. P. and Talbot, M. E.
Curriculum for Young Mentally Retarded Children

Orientation: Primary consideration was given to the development of a step-by-step progress guide for teachers, and a structuring of environmental settings for children. The orientation was structured in its focus but eclectic in its theoretical approach. The purpose was to prepare Ss to adequately adjust to the N. Y. City school system.

Population: Children were between 4.9 and 6.9 years of age. Selection was limited to males and females between 50 and 75 I.Q. (educable mentally retarded), living in N. Y. City.

Curriculum: The curriculum was conceptualized as three-dimensional reflecting the interrelationships of three components: (1) curriculum guide; (2) action settings; and (3) cross-sectional or unit approaches. It was designed to foster: (1) attention, (2) problem solving, (3) motivation, (4) work habits, (5) concept development, and (6) speech and language growth.

Method: The study covered four years in which the experimental preschool conducted seven classes with four different groups of children. Classes were held five days a week for 2½ hours each day. Each group had two teachers. The teacher's activities included design of the curriculum, methodology and materials, implementing the curriculum, observing child behavior, and recording results.

The curriculum guide contained 190 items in five-point developmental scales used by the teachers for help in implementing the teaching-learning process. Each child was rated by the teachers three times per year to provide: teacher direction, program balance, and assessment of the child and group status.

The action settings constituted the settings in which the program was implemented and included: discussion sessions, music group handiwork projects, free play, juice time, playground, story telling, swimming, cooking, and trips.

The cross-sectional approach emphasized the unit method in which units were considered as habits and ways of functioning.

Both the teacher and student received a set of directions: the teacher's directions constituted a set of long term behavioral goals and the more specific goals of the curriculum guide; the student's goals constituted a set of operations within units of time, subject matter, concept sequence, and personal relationships inherent in each individual situation.

For each specific curriculum item scaled horizontally on a five point rating sheet, there were five vertical levels of description: the first vertical level constituted the five horizontal levels of the curriculum item; the second vertical level presented a precise definition of the behavior under observation; the third vertical level provided a description of behavior observed at each horizontal level; the fourth vertical level offered predictable behavior used in programming for the next horizontal level; and the fifth vertical level provided teaching procedures which utilized the fourth vertical level to move toward behavior at the next horizontal level.

Children received individualized programming characterized by small developmental steps, reinforcement, and structured environmental settings.

Assessment Indices:

1. Anecdotal Records
2. Ratings on Curriculum Guide Items
3. Stanford-Binet
4. Wide Range Achievement Tests

Results: Indications of significant improvements on the Stanford-Binet and Wide Range Achievement Tests are provided in the conclusion to the program, but no specific data from these two tests are provided. Detailed mean scores on curriculum guide scores also indicated individual growth in many areas.

Delivery: The program is quite well developed and a detailed guide is available.

Comments: The breakdown of the rating scale into its horizontal and vertical levels is excellent and should be pursued further as a means of truly specifying programs in a useful manner for teachers.

Reference:

Conner, F. P., & Talbot, M. E. An experimental curriculum for young mentally retarded children. Teachers College Press, Teachers College, Columbia University, New York, 1966.

DARCEE
Demonstration and Research Center for Early Education

Orientation: This program is associated with and logically grew out of an earlier study, The Early Training Project (Gray, Klaus, Miller, & Forrester, 1966; Klaus, & Gray, 1968). The Center is concerned with research, training and demonstration relative to improving the learning potentials of children from low income families. The primary goal is to develop in the preschool disadvantaged child the aptitudes and attitudes which past research has shown to be correlated with academic achievement.

Population: The program has worked with 3, 4, and 5 year old disadvantaged children and their families (mothers and younger siblings).

Curriculum: Based on an information processing model the refined curriculum is outlined as follows:

A. Sensory Skills
   1. Orienting and Attentional
   2. Discriminatory
   3. Relational
   4. Sequential

B. Abstracting and Mediating Skills
   1. Basic Concept Development
   2. Association
   3. Classification
   4. Sequencing
   5. Critical Thinking

C. Response Skills
   1. Verbal
      - Fluency
      - Articulation
      - Syntax
   2. Motor
      - Small-Motor Coordination
      - Orientation

Simultaneously, certain attitudes are emphasized:

1. Persistence
2. Delay of gratification

3. Interest in school-like activities
4. Identification with achieving role models

Method: In the DARCEE program the emphasis is more on the nature of the program than the nature of the child. The teacher is a very active agent in the learning process. He or she decides what activities take place, when, and how they will provide the greatest amount of learning. Sometimes children in this program are allowed to play, and are given some choice, but even their free play activities are directed toward learning something. It is recognized that the motivation to learn may not be present in these children, and that this motive, as well as skills, must also be learned.

An effort was made in this program to arrange experiences for individual children and groups of children in line with their particular needs and level of development. Small groups were formed on the basis of Mental Age. Rearrangements of the sub-groups continued to be made throughout the first part of the summer on the basis of the social maturity of the children, the kinds of interactions among the children, and the competencies of the teaching assistants in working with children with varying patterns of behavior. Within each small group, emphasis was placed on trying as much as possible to adjust demands to the level of competence of each child in the group.

One of the most important principles in the DARCEE program is that of sequencing activities in order of difficulty and encouraging a widening of scope within a given content area. Although the content is subsidiary in importance to skill development, a unit approach for the organization of learning situations was utilized. In this way both the activities within a unit and the units themselves are sequenced to augment the continuing growth of more and more complex skills.

By means of an interrelated unit approach, each successive unit utilizes concepts and skills in each of the preceding units and develops them further.

For example, the first content unit is about the child himself. The concepts and skills introduced there are repeatedly utilized in a sequence of units on family and home, neighborhood and city. The child is consistently carried from proximal to distal situations in space orientation, encouraging him to move from reliance on perceptual media to the use of conceptual and language media for learning.

In the DARCEE program emphasis is placed on contingent positive reinforcement for correct behavior. Because of the immaturity of the children initially and their home backgrounds, it was assumed that the most effective positive reinforcements would be concrete reward and an adult's physically expressed approval or affection -- e.g., being hugged or carried on the shoulders.

The child was reinforced, at first every time, and then selectively so that he found he received positive reinforcement for endeavor and achievement in terms of the variables the program was designed to manipulate. In general, the child moved along from the need for concrete reinforcement to more abstract and internalized reinforcement. The attempt also was to move the children toward a willingness to work for delayed reinforcement.

Assessment Indices: (Major Indices)

Mothers - Wechsler Adult Intelligence Scale
Home Educational Environment Index (HEEI)

Target Children - Stanford Binet, PPVT, Achievement data

Younger Siblings - Stanford Binet, PPVT, DARCEE Concept Test, Achievement data

Results: A final report will be completed by September 1, 1970. Interim reports are currently available.

References:

Camp, J. C. A skill development curriculum for 3, 4, and 5 year old disadvantaged children. Demonstration and Research Center for Early Education, George Peabody College for Teachers, Nashville, Tennessee, June, 1969.

Gray, S. W. & Klaus, R. A. An experimental preschool program for culturally deprived children. Child Development, 1965, 36, 887-898.

Gray, S. W. & Klaus, R. A. Deprivation, development, and diffusion. Demonstration and Research Center for Early Education, George Peabody College for Teachers, Nashville, Tennessee, 1966.

Gray, S. W., Klaus, R. A., Miller, J. O., & Forrester, B. J. Before first grade. New York: Teachers College Press, 1966.

Gray, S. W., Miller, J. O., Hinze, R. H., & Schoggen, M. Research, change and social responsibility: An illustrative model for early education. George Peabody College for Teachers, Nashville, Tennessee, 1967.

Klaus, R. A. & Gray, S. W. The early training project for disadvantaged children: A report after five years. Monographs of the Society for Research in Child Development, 33, 4, 1968.

Miller, L. B. Experimental variation of head start curricula: A comparison of current approaches. Annual Progress Report. Child Development Laboratory, University of Louisville, Louisville, Kentucky, 1969.

The Durham Education Improvement Program

Orientation: The Durham Education Improvement Program (EIP) called for "the development, over a five-year period, of a model school system providing a longitudinal stimulation and evaluation program for a large number of culturally disadvantaged children at early and varied stages in their lives." The model system included an Infant Evaluation Project, a nursery school, a preschool, a series of ungraded primary groups, and a laboratory school. The major goals declared for the Durham EIP were:

1. "The orderly development of a model system focusing heavily upon the preschool child, but allowing for transition into the early elementary years";
2. "Continuous conduct of curriculum and child development research (The most relevant characteristics of the culturally disadvantaged population would be identified in an effort to enhance the effectiveness of innovation.)";
3. "Development of an innovative program having implications for state and national efforts on behalf of the disadvantaged child."

Four major assumptions were held by the Durham EIP. First, disadvantaged children are normal at birth, are potentially normal academic achievers, and adapt to their environment following the same laws of learning which apply to all children. Second, the educative model produces greater increases in social and academic competency than the therapeutic model. Third, the environments of disadvantaged children reinforce many behaviors not rewarded by middle class families, and because coping behaviors are formed early in life, early intervention is desirable and necessary if the adaptive and cognitive skills of the child are to be organized to meet the demands of a middle class culture. Special training of teachers is required in order to provide carefully structured physical, social, and psychological environments. Finally, "it is possible to implement a program of style modification aiding in the development of a continuous process of accomodation and assimilation that will be reflected in the

products of intellectual and adaptive activity, as well as the qualitative aspects of cognitive development."

Population: The children participating in the project were from disadvantaged areas of Durham. They attended either one of three target schools located near Duke University campus. At the time of the second annual report, 198 children, ranging in age from 2 to 15 years, were involved in the program. Seventy-five of these children were enrolled in nursery school or kindergarten. For EIP Program Year III all children enrolled during Year II proceeded to the next year level. This group continuing in the program included eight to ten infants who moved from the Infant Evaluation component to a two-year-old nursery program. In general, mean family income was at or near the poverty level. Data was also collected concerning mean ages of parents, mean educational level of parents, occupations of parents (including job stability), number of persons in household, and information about home ownership, home condition, and integrity of family. Fifty-six control group children were identified for comparative studies with EIP children at each level.

Curriculum: The curriculum was still in the process of development when the second annual report was written, and by now it is probably described in more detail. Curricular innovations of the Durham Education Improvement Program fall into two main areas: development of materials designed specifically to help children overcome past environmental deficits and systematic introduction of materials and techniques already evaluated as effective means of teaching disadvantaged children. The EIP curriculum was designed to provide a wide base of experience in many subject areas and to encourage the child to gain independence in guiding his own learning. The teachers were trained in the use of materials and techniques which integrated the total language development of the child. Opportunities for listening, speaking, reading, writing, discussing, and thinking in a variety of contexts were stressed. Audio-visual equipment was

used both in teaching the children and in teacher training. Inquiry and discovery processes were emphasized in the science program and linguistics in the reading program, with units of instruction always compiled to emphasize understanding rather than memorization.

In an attempt to implement individualized instruction at each child's current level of performance, team teaching, cooperative teaching arrangements, and an ungraded school were used. In addition, these reorganizations represented an attempt to capitalize on each teacher's strengths to foster optimal pupil growth. "EIP's primary goal [was] to take children as rapidly and as far as they [could] go with success and emotional security, regardless of their predicted potential."

The major learning task for a preschool child was considered to be mastery of verbal symbol system with appropriate syntax and grammar. Direct experience with objects and events, direct instruction of concepts (such as up, down, left, right, etc.), and encouragement of inductive processes were emphasized. Physical development, social group skills, and positive self concepts were also considered important because of their interaction with cognitive development.

Building on the work of speech and language specialists, the EIP group also developed a sequence of experiences for preschool and primary children which begins with vowels or consonants in initial positions and extends to more complex patterns of sound blends and sounds in medial and final positions.

Method: Two qualified teachers and teacher aides were responsible for each class of two, three, and four year olds. A third teacher was available in some of the classes. Preschool children attended either a morning or afternoon session of three hours. In addition to the regular teachers, a speech and language consultant, a reading consultant, and a mathematics specialist were available for daily consultation.

Precise and operationally-defined behavioral objectives were not presented in the reports from which this overview of the Durham EIP is written. However, "individual instruction," "teaching a child at his own level," and "teaching small groups of children according to their current level of achievement" are stressed. A sequenced presentation of materials is also emphasized.

Assessment Indices: The Research and Evaluation Component of the Durham EIP is comprised of three research sections: General Evaluation, Special Studies, and Infant Evaluation. These three basic research sections were necessary in order to combine external and internal evaluations of the entire ongoing program as well as initiation and evaluation of special smaller-scale studies. Overall, "experimental/control group designs are stressed less than studies of change along some dimension within small groups. Close observation in the learning setting and concern with the learning process are emphasized more than the learned product. The task of evaluation is the collection of facts contributing to effective and productive program development and to a better understanding of the educational process considered optimal for this population."

During fall and spring, all EIP children are evaluated on measures of intelligence, social maturity, language age, motor development, educational readiness, and academic achievement. The Wechsler Intelligence Scale for Children (WISC), the Stanford-Binet, and the Peabody Picture Vocabulary Test have all been used in the attainment of I.Q. data. Special studies used assessment indices appropriate for their particular emphases.

Results: Only I.Q. data from the evaluation of the EIP children in the fall of 1965, the spring of 1966, the fall of 1966, and the spring of 1967, were presented in the second annual report. However, no statistical tests were summarized, and the data were simply presented in tabular form. In general, the Stanford-Binet I.Q. scores of the experimental preschool group appear to be higher than the scores of the control group.

At this later stage in the research program, a much more complete summary of the intellectual and educational progress of the participating children is probably available from the Durham EIP.

Delivery: "Educational technicians" were utilized by the General Evaluation Section to administer the variety of tests required, particularly during fall and spring assessment. Educational technicians were eleven housewives who were trained in the individual administration of standardized psychological and educational measurements and who agreed to work 50 percent of an average week during the school year. During the winter, educational technicians served as research assistants for individual special studies or were involved in in-service training in preparation for the next evaluation. This educational technician program was considered to be "singularly successful."

A School Social Service Component of the EIP was actively involved in: (1) provision of services needed to sustain participation of EIP children in the educational program, (2) collection of demographic data in order to increase knowledge of the population and thereby to facilitate program planning, and (3) experimentation with parent education programs. Four graduate social workers, a registered nurse (who served as project health coordinator), and a research technician made up the social service staff. Small group meetings of parents, parent newsletters, home instruction, home visits, and health referrals were among the staff's varied activities.

Comments: The Special Studies component of Research and Evaluation was comprised of a chief research assistant, a research consultant, and eight highly-skilled research technicians. The special studies usually focused on one of the four areas of EIP's research emphasis: characteristics of culturally disadvantaged children; case studies in behavior modification; studies in curriculum development and classroom behavior analysis; and study of EIP program impact. During the second year there was an average of twelve studies underway at any one time. The titles

and authors of special studies completed during years 1 and 2 of the Durham EIP are listed below. Reprints and lists of other available reports may be obtained through the Durham EIP Information Office, Mutual Plaza, Durham, North Carolina, 27701.

Disadvantaged Children Characterized:

1. A comparative study of failure avoidance in culturally disadvantaged and non-disadvantaged first grade children (D. J. Stedman & P. G. Wibbink).
2. The social maturity of disadvantaged children (J. J. Gallagher, A. Funderburk, & T. Leonhardt).
3. Modification of immediate and delay gratification patterns of disadvantaged primary school children through imitation (S. Sibley, P. Barton, & T. Leonhardt).
4. The attitudes of disadvantaged youth (H. Lee, A. Funderburk, T. Leonhardt, M. LaBarre, & C. Penny).
5. A comparison of parent and teacher ratings on the preschool attainment record of 17 six-year-old disadvantaged children (D. J. Stedman, M. Clifford, & A. Spitznagel).

Infant Studies:

Studies 6-9 are specific studies conducted within the Infant Project component of the Durham EIP and will not be listed here.

Teacher-Child Transactions:

10. A coping analysis schedule for educational settings (CASES) (R. L. Spaulding).

Case Studies in Behavior Modification:

11. Effects of positive social reinforcement on the negative behavior of a kindergarten child (R. L. Spaulding & M. Rothbard).
12. Classroom behavior modification techniques applied to educationally deprived primary school-age children (J. J. Gallagher, N. Anastasiow, Barbara Cooper, Betty Cooper, L. Douglass, A. Funderburk, R. Gordon, J. Hoppe, & M. Rothbard).

13. Modification of the classroom behavior of a disadvantaged kindergarten boy using social reinforcement and isolation: "Bobby" (S. Sibley, M. Abbott, & B. Cooper).
14. Modification of the classroom behavior of a disadvantaged kindergarten boy using social reinforcement and isolation: "Larry" (S. Sibley, R. Gordon, & A. Peyton).

Teacher Compatibility:

15. A method of evaluating teacher compatibility in team teaching (S. Sibley & B. Cooper).

Curriculum Studies Launched:

16. Introduction of geometric concepts and a reinforcement system to culturally disadvantaged kindergarten children (P. Barton, M. Abbott, S. Sibley, & B. Cooper).
17. An investigation of cognitive processes of disadvantaged children (J. J. Gallagher, C. Dixon & A. Funderburk).
18. Linguistic reading in Negro first graders (N. Anastasiow).

Psycholinguistic Abilities Evaluation:

19. An evaluation of the psycholinguistic abilities of eight culturally disadvantaged preschool children (D. J. Stedman & B. Rothman).
20. A factor analytic study of the performance of 340 disadvantaged children on the Illinois Test of Psycholinguistic Abilities (D. S. Leventhal & D. J. Stedman).
21. An observational comparison of the language development of two preschool groups (B. Rothman L. J. Borstelmann).
22. Associative clustering in culturally deprived and non-culturally deprived children (L. Spence & D. J. Stedman).
23. Psycholinguistic abilities of culturally deprived children (S. Morrissey & D. J. Stedman).

<u>References</u>:

The Durham Education Improvement Program. Duke University, 1966-67.

The Durham Education Improvement Program, Research. Duke University, 1966-67.

Sibley, S. A. Behavior modification with disadvantaged pupils. Paper presented at the meeting of the American Educational Research Association, Chicago, February, 1968.

Educational Testing Service
Prekindergarten, Kindergarten, and First Grade Programs

Orientation: This project was undertaken by the New York City Board of Education and Educational Testing Service in 1964. The main objectives of the project were stated as follows:

1. To develop a guide that will help teachers better understand the intellectual development of young children and aid them in observing significant behavioral signs of the child's developmental level.

2. To develop various instructional and assessment materials that will help foster intellectual growth.

3. To develop a series of written exercises that will serve as learning materials for children and provide the teacher with information on several aspects of the child's developed learning skills.

The translation of modern theory and research into practical tools for the teacher was the approach taken to develop the above three types of materials.

The major underlying assumption was the "children learn thought processes." "By interaction with the environment they gradually develop skills and concepts which enable them to solve problems and deal with the world rationally and creatively. Taken together at any point in time, these skills develop through a sequence of stages, and the stages specified correspond to those of Piaget. The major steps of the project were to, first, trace the development of skills and concepts and, second, describe various activities and materials which would help foster the child's intellectual growth and progression from one stage to the next.

In the development of assessment and instructional materials, the first step was in initial period of

inquiry during which information was collected in selected areas of intellectual functioning. On the basis of this information, instructional and assessment materials and written exercises were developed which would serve as learning activities for the children and provide the teacher with information on the child's progress.

Population: The materials were developed for use with prekindergarten, kindergarten, and first grade children in New York City schools, thus the sample included children who varied widely in background.

Curriculum: The project materials include a guide, instructional and assessment materials, and written exercises. The guide is an instructional handbook which includes (1) major theoretical concepts about the intellectual development of children, (2) concrete examples of behavior which illustrate these concepts, and (3) an overview of all materials of the project. The instructional and assessment materials consist of tasks which elicit intellectual behavior. These materials function as both diagnostic instruments for the teacher and instructional tasks for the children. Some are administered to individual children, some to small groups, and some to class groups. The written exercises are related to theoretical concepts presented in the guide and are designed to evaluate the child's ability in those skills which are taught.

The cognitive areas initially selected for study at the prekindergarten-kindergarten age were (1) classification, (2) concepts of time and space (distance, temporal ordering of events, perception of time as a quantity), (3) understanding of change (in size, position, color, number, and other attributes of people, animals, and objects), and (4) basic language skills (receptive, reproductive, and productive).

Results: For more recent information on the curriculum and for information concerning assessment of the effectiveness of the program, the Educational Testing Service may be contacted.

References:

Assessment and development of cognitive skills in young children: Examiners' manual. Educational Testing Service, Princeton, N. J., 1966.

Let's look at first grades: Instructional and assessment materials; the written exercises. Educational Testing Service, Princeton, N. J., 1965.

Hodges, W. L., McCandless, B. R. and Spiker, H. H.
Indiana Project - Diagnostically Based Curriculum

Orientation: The program is a structured, diagnostically based kindergarten curriculum to increase intellectual, language, motor and socialization abilities.

Population: Ss were five-year-old, psychosocially disadvantaged children who scored between 50 and 85 on the Stanford-Binet. The sample was composed of 82 boys and 60 girls, living in rural and semi-rural Appalachian communities.

Curriculum: The curriculum includes intellectual, language, motor, and personal-social adjustment components.

Method: The curriculum was designed to structure the learning experiences of the five-year-old retarded Ss to maximize the possibility of increasing their perceptual, cognitive, and social-personal development.

Except for the language and five motor lessons, which were highly structured, the curriculum content was similar to a traditional preschool. It differed, however, in the way the activities were used. Activities such as art, music, and physical education were considered as means to an end, rather than as ends in themselves.

The curriculum and teaching strategies were considered more important than the packaged lessons developed for the project used alone. Teachers were trained to be child rather than content oriented. This was stressed so that the children's deficits or developmental needs were considered first -- then activities were planned to remediate those deficits.

The techniques or strategies employed by the teacher included verbal explanations, directed observation, role playing, and concrete reinforcement and/or social approbation. Discipline consisted of a mild reprimand or a "time out" period. Behavioral shaping techniques were employed to eliminate the

initial use of concrete rewards so that their demand was diminished to practically zero at the end of the intervention year.

Individual areas of concentration for each student were outlined from a diagnostic analysis of pre-enrollment test data and child and class observations. Individual charts were constructed based on each child's score on the Stanford-Binet, PPVT, and ITPA. Horizontal inspection of these charts provided a means of delineating strong and weak areas for which specific curricula could be prescribed.

Ss were assigned to one of ten groups, so that each group consisted of approximately 14 Ss. The ten groups were distributed among treatment procedures over three academic years so that: three groups received a diagnostically based curriculum (EPS); three groups received a traditional kindergarten program (KC); and four groups remained at home and received no kindergarten experience (AHC).

Three studies were conducted: Study I was conducted in 1964-65. These Ss were followed through two years of public or parochial school. Study II was conducted in 1965-66. These children were followed through one year of regular school. Study III was conducted in 1966-67. No follow-up data is currently available.

A child-to-teacher ratio of approximately 14:1 was maintained because of the generally high ratio experienced in the public schools, and to determine its effect relative to the low-ratio programs (e.g., Bereiter and Englemann).

Assessment Indices:

Pre- and Posttest Measures of Cognition

1. Stanford-Binet, Form L-M
2. Peabody Picture Vocabulary Test
3. Raven's Progressive Matrices
4. Goodenough Draw-a-Man
5. Illinois Test of Psycho-Linguistic Abilities
6. Lincoln-Oseretsky Motor Development Scale
7. San Francisco Inventory of Communicative Effectiveness

8. Caldwell Preschool Inventory
9. Frostig Test of Visual Perception
10. Optometric Evaluation
11. Articulation
12. Columbia Mental Maturity Scale

Achievement Measures:

1. Eight-Point Reading Scale
2. Teacher Paired-Comparison on:
   a. Number Skills
   b. Reading Skills
3. California Achievement Test
4. School Report Card

Results: (Data collapsed over Studies I, II, and III)

1. The EPS group showed greater increments than either the KC or AHC groups on Binet I.Q. when data from Studies I, II, and III were combined.
2. Total EPS scores on the PPVE Posttest were significantly higher than AHC.
3. Data from the ITPA for Studies I and III (the only studies that used the ITPA as a pre-post measure) indicated that EPS showed gains that were significantly better than AHC.
4. Total motor scores on the Lincoln-Oseretsky Motor Development Scale demonstrated that EPS and KC were not significantly different but that both were significantly higher than AHC.

Results: (follow-up data)

1. Binet I.Q. scores apparently stabilized during the first grade (gains were not lost) for EPS and KC groups. AHC children, on the other hand, showed a spurt of intellectual growth until they did not differ statistically from the other two groups.
2. There were no significant differences between EPS, KC, and AHC groups on the PPVT or ITPA after the completion of first grade.
3. There were no significant differences between groups in motor development at the end of first grade.
4. EPS group received significantly more total satisfactory academic marks than KC or AHC when studies I and II were pooled.

Delivery: While no specific program outline was available, such a program could be used if sufficiently trained personnel were available. One positive feature is the use of higher pupil-teacher ratios which might compensate for the generally lower gains compared to programs with lower pupil-teacher ratios.

Reference:

Hodges, W. L., McCandless, B. R., and Spiker, H. H. The development and evaluation of a diagnostically based curriculum for preschool psychosocially deprived children. Final Report. University of Indiana Project No. 5-0350, U. S. Department of Health, Education, and Welfare, 1967.

Kamii, C. and Radin, N.
Ypsilanti Early Education Program

Orientation: This is a 3 year empirical early education program begun in 1967. It follows from 2 other empirical preschool studies (Perry Preschool Project and Gale Preschool Program) conducted at Ypsilanti. This cognitively focused program also is based on Piagetian theory. The curriculum goals are partly based on Piaget's two aspects of knowledge: (1) the operative aspect, which involves different types of mental operations (e.g., ability to seriate), and (2) the figurative aspect, which pertains to the various levels of symbolization from the concrete object per se to the work representation of the object.

Specifically, the program aims to facilitate the movement of children from the sensory-motor period, where most of them are initially, to the pre-operational stage, and to facilitate the children's ability to perform mental operations with representations of objects as well as with the objects per se.

The goal of developing children's inner control is also an integral part of the curriculum and is based on work formerly done in Ypsilanti.

Language patterning is another focus of the program. It is a modification of the Bereiter-Englemann patterned language drills. This is not seen as a mechanism for teaching concepts, however, but rather as important in helping children to use the concepts that they have acquired through a non-verbal sensory-motor training program. It is included to help children focus on concepts and retrieve them.

Population: This program is being tested each year for 3 years on 100 four-year-old children including 50 Negro and 50 white, 50 girls and 50 boys who are disadvantaged and living in the Ypsilanti Public School district in Michigan. There is also a Special Education preschool program in Ypsilanti for 24 disadvantaged four-year-olds who test in the "retarded" range.

Curriculum: The curriculum can be outlined as follows:

A. The operative aspect of knowledge
    1. Logico-mathematical operations
        a. Classification
        b. Seriation
        c. Numbers
    2. Spatio-temporal operations
        a. Spatial relations
        b. Temporal relations
B. The figurative aspect of knowledge
    1. Concrete object per se
    2. Parts of the objects
    3. Imprint or sound made by the object
    4. A representation of the object
    5. Word representing the object
C. Inner control
D. Language patterning

Method: Each year 100 children are divided into 10 classes of 10 children each. Fifty children attend classes in the morning, and 50 occupy the same five classrooms in the afternoon. Each class is supervised by a teacher and an aide. The classes meet four days per week for 8 months.

On the basis of selection relevant to preschool education, certain broad cognitive areas were chosen for Piagetian theory. Specific goals were delineated and sequenced within each of the cognitive areas, based on the major developmental stages within each broad cognitive area. For example, within the cognitive area of classification children progress through the stage of graphic collections, to that of non-graphic collections, and later reach the stage of classification. A specific goal within the classification stage might be a dichotomization of food vs. things to write and draw with. The curriculum describes, in detail, at least one teaching activity for each such goal, as an example of how to help children to reach that goal. Piaget-oriented teaching means that the activities involve structuring the teaching situation to encourage the child to act, to judge, and to discover. An example here would be the availability of a variety of kits which include food items plus pencils, crayons, pens and paint brushes to be sorted.

The last ingredient in the curriculum is diagnostic tests. These are of 2 types: (1) standard experimental tasks devised by Piaget, which are administered in November and May. These are too hard for the children but give clear indications as to how the children approach a problem and how much progress is made, and (2) bi-weekly tasks, designed for each concept taught at various levels of representation. These indicate whether the goals of the previous week have been mastered.

Reinforcement patterns are used as a foundation for the development of inner control by the child. A reinforcement is provided to increase the frequency of desirable behavior, the behavior itself comes to be associated with pleasure, and the performance of the behavior will become self-reinforcing. When this occurs external rewards are no longer necessary.

There are 3 additional unique and integral aspects of this program. One is the implementation of a new curriculum into the school system, the second is the home teaching program, and the third is the parent program. One of the three major goals of the overall program was to develop a model for introducing a new curriculum into a school setting. This program gives great emphasis to program implementation. It does this in 3 ways: (1) By actively involving the teachers in the creative process of curriculum development, their commitment to it is secured; (2) By providing a model combining the efforts of 3 categories of staff members which has shown itself to generate great enthusiasm and a strong sense of cohesion. (specifically, this involves a theorist who understands the abstract theory which is the foundation of the program and can translate it into specific goals for the program, master teachers who comprehend the essence of the theory and can translate the goals into specific teaching activities, and classroom teachers who try out approaches suggested and can give evaluative reports on the effectiveness of given activities and can work with the master teacher on revisions of activities); and (3) By presenting an orientation program to all staff members, plus aides, at the beginning of the year, plus an on-going in-service training program so that constant feedback is maintained.

Another major aspect of the program is the home visits, which are made by the teacher once every 2 weeks on the half days when the child is not in school. Their purpose is: (1) to conduct individual tutorial sessions with each child, and (2) to involve and instruct the mother in the educative process.

The content of the home visits parallels the classroom activity. This aspect, as the rest of the program, is very clearly spelled out, even to the extent of a compilation of a catalog of home teaching activities determined to be effective because: (1) they benefit the child; (2) they make sense to the mother; and (3) they are structured so that they can be continued by the mother in the absence of the teacher during the ensuing two weeks.

The final major goal of this program is a parent group-work program focusing on those aspects of child rearing related to fostering motivation to achieve, inner control, and cognitive development. At present a research designed framework has been set up to test the effectiveness of this aspect of the program as well as the effectivenss of 2 different modes of presenting the same content to parents (lecture and participation). The 2 treatment groups are divided into small groups of about 10 mothers who meet weekly with a social worker. The parent curriculum is divided into three units of approximately 6 weeks each. Lessons are planned for each of the meetings. The broad outline is:

Unit I - Principles of Skinnerian behavior-modification related to specific child management problems suggested by the mothers.

Unit II - Activities parents can engage in to foster cognitive development (parelleling the class program) in their children.

Unit III - Techniques useful to parents in fostering self-reinforcement or inner control by the child.

<u>Assessment Indices</u>:

1. Stanford Binet
2. Peabody Picture Vocabulary
3. Pupil Behavior Inventory (filled out by teachers and aides)

4. Parental Attitude Research Instrument (short form developed by Radin and Glasser, 1965; adapted from Shaefer and Bell, 1958)
5. The Cognitive Home Environment Scale (Radin and Weikart, 1966; adapted from Wolf, 1964)

Results: The only results presently available were obtained on a 5½ month pilot program involving 20 disadvantaged four-year-olds. This program (Gale Preschool Program) was identical with the present program, except that there was no group parent program.

The mean gain in the Stanford-Binet was 13.7 points. However, 2 months later, in a post-post testing, there was a 6.4 point drop on the Binet. An item analysis revealed that the loss pertained to abstract concepts, such as spatial relations and classification. (This is being remedied in the present program by continued diagnostic testing to be certain that the children are comprehending what is being taught.)

The Pupil Behavior Inventory revealed that the children's interest in academic affairs increased significantly.

The parents were found to increase, overwhelmingly, in the amount of education they felt and expected their children should have, and the amount of educational materials in the home.

The most surprising finding was that the best predictor of gain in Binet I.Q. was a factor on the Pupil Behavior Inventory -- the children who were seen as being possessive of the teacher, seeking constant reassurance, were the children who gained most.

Comments: Observation of the project is welcome and conferences are being held in the spring of each year.

In 1970 it was projected that a fully tried and tested guide would be written in a form which would enable other teachers, supervisors, and social workers to use it.

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Karnes, M. B., Hodgins, A. S. & Teska, J. A.
Ameliorative Preschool Program

Orientation: The program is derived from a modification of Osgood's theoretical model which concerns itself with the analysis of psycholinguistic processes, and channels of communication.

There are two primary theoretical considerations: the first is to provide stimulation for intellectual growth. This can be acccomplished by creating an environment of optimal learning conditions which will provide the child with a "proper match" between what has been learned and what will be learned. Proper stimulation also implies that sufficient repetitions are provided to ensure overlearning. For this to occur, the curriculum must be highly specified. The second consideration is the development of motivation conducive to good learning. To accomplish this aspect of the program, responses must be carefully sequenced and immediate feedback of performance provided.

Population: The target population for this program is the culturally deprived lacking in requisite skills for school success.

Curriculum: The curriculum specifies instruction in mathematics, language, social studies, science, and music.

Method: The program is highly structured in that all activities are carefully programmed to ameliorate specific deficits of the disadvantaged child and provide the necessary motivation for successful learning. Since the development of language skills is the area of greatest weakness among culturally disadvantaged children, it was given a high priority in the program.

The model of language processes which served as a guide in the construction of the Illinois Test of Psycholinguistic Abilities (ITPA) helps teachers devise appropriate remedial and developmental language activities. The five major processes comprising this model are: 1) understanding (decoding); 2) determining

relationships (association); 3) closure (integration); 4) expressing ideas (encoding); and, 5) memory. The diagnostic profile provided by the ITPA indicates areas in the language process that can be helped through a given set of experiences.

Children were instructed in groups of five. Within the group, however, instruction was differentiated so that each child worked at a task that would directly affect his personal deficits. To ensure success in this type of program, the teacher must be thoroughly acquainted with a given child's profile of strengths and weaknesses.

Curriculum guides have been developed for this program in mathematics, language, social studies, science, and music which map the experiences that are presented to the children. Subject matter is generally presented in a game format. Initially, manipulative and multisensory materials are stressed. However, a deliberate attempt was made to elicit as many verbal responses as possible. As a child progressed, more emphasis was placed on books and mimeographed materials. The Frostig Program was also used to aid the development of visual perception. The instructional materials were designed to reinforce, expand, and facilitate transfer of concepts and information, and further diagnose deficits in information and communication processes.

Summary of Results: (See Appendix for abstract of evaluative stuides.)

1. The effects of five preschool interventions: evaluations over two years.

   The five programs studied were: 1) Traditional; 2) Community Integrated; 3) Montessori; 4) Ameliorative; and 5) Direct Verbal. At the end of the preschool year the children in the Ameliorative and Direct Verbal programs generally showed the greatest gains; The Traditional program showed more modest gains; and the Community-Integrated program and the Montessori programs showed the least progress.

   At the end of the kindergarten year (in which all groups but Direct Verbal attended public kindergarten) the Direct Verbal group was clearly

superior to the other four groups in both intellectual (Binet I.Q.) and language (ITPA) functioning.

The Direct Verbal group was the only group to continue specific training in the kindergarten year which obviously influenced the findings. It is clear though, that one year of the other four programs did not equip the children with requisite skills to continue intellectual growth in the kindergarten year. (Karnes, 1969)

2. A follow-up of three of the five preschool interventions: evaluations over three years.

   No intervention program was very successful in providing the necessary base for high achievement in intellectual and language functioning at the end of first grade. Only the Direct Verbal program, where extensive intervention was maintained over two years, showed any growth. The deterioration in language and programming demonstrates the need for continued intervention and low pupil-teacher ratios. (Karnes, 1969)

3. Earlier Intervention: Effects of the ameliorative program initiated with three-year-old children and maintained for two years.

   There were no differences in performance on any of the assessment indices between three and four-year-old children during one year in the program. After two years in the program, there were no differences between three- and four-year-old children. Doubling the length of intervention apparently had no appreciable impact. (Karnes, 1969)

4. The impact of at-home instruction by mothers on performance in the Ameliorative preschool.

   Performance of children in the Ameliorative group with mothers who were involved in the program was nearly identical to that of the Ameliorative group with no mother involvement. (Karnes, 1969)

5. Implementing the Ameliorative program with paraprofessional staff.

Although children taught by paraprofessionals did not achieve scores on some dependent measures which equalled those of children taught by professionals, there was no significant difference between the groups. The results support the proposition that preschool staffing problems might be alleviated through the use of paraprofessionals who undergo extensive in-service training. Some practical difficulties were found when using teenage paraprofessionals. (Karnes, 1969)

6. The effects of the Ameliorative program with a class of low I.Q. children.

   Ss who had not been included in the low strata in prior studies or who had an I.Q. below 70 were placed in an Ameliorative training group. No direct control was avaliable. During the 9-month program, Binet M.A. increased 19 months and ITPA total age increased 12 months. (Karnes, 1969)

Delivery: A book of activities (Karnes, 1968) specifies procedures to follow for each of the ten areas covered by the ITPA and provides a source list for materials. The fact that the program can be taught by supervised paraprofessionals with little or no loss in intellectual or language gains, compared to professional teachers, also enhances the program's appeal in areas where financial or personnel considerations make it unfeasible to hire only professionals.

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Nimnicht, G., McAfee, O. and Meier, J.
The New Nursery School

Orientation: The New Nursery School's program is essentially an eclectic approach and is indebted to works of Maria Montessori, Martin Deutsch, and Omar K. Moore. It is assumed that the development of a postive self-image and intellectual ability are vital in preparing children for success in school and subsequently in life. To achieve these goals, activities in the classroom are "autolectic." That is, every activity is undertaken for its own sake, its purpose is self-contained. The program is based on the notion that children like to learn, and will learn, if given freedom and sensitive guidance within a properly equipped environment. The procedures at the New Nursery represent a "kind of synthesis" and are compatible with the principles advocated by leading learning theorists.

Population: 3, 4, and 5-year-old disadvantaged children are the target population for the New Nursery.

Curriculum:

1. Develop a positive self-image.
2. Increase sensory and perceptual acuity.
3. Improve language skill.
4. Promote the formation of certain concepts essential for later learning.
5. Develop the child's ability to solve problems.

Method: The program is designed for two adults per fifteen children. One adult is a trained teacher, the other a nonprofessional assistant or volunteer. The child spends most of his three hours in self-directed activities. About fifteen minutes a day are devoted to group activities or planned learning episodes.

Behavioral objectives and activities are outlined in six Learning Activities Booklets. The material encompasses approximately a year's work sequenced in ascending order of difficulty.

Results: (See Appendix for abstract of evaluative study.)

"The combined results on the Metropolitan Readiness Test, the Preschool Inventory, and the various experimental tests of concept formation and problem solving are encouraging. Furthermore, we have considerable case study materials that support the test findings. We will be able to place more confidence in the findings as the project continues and we are able to more precisely evaluate the strengths and weaknesses of the program." (Nimnicht, G., Meier, J. & McAfee, O., 1967, p. 41.)

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Nimnicht, G., McAfee, O. & Meier, J. The New Nursery School, New York: General Learning Corporation, 1968.

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Palmer, F.
Early Intellective Training

Orientation: The assumptions on which this program is based are (1) certain concepts are prerequisites for subsequent learning, and (2) the earlier children acquire fundamental concepts, the earlier they will be able to acquire, on their own, increasingly complex responses to their environment. Thus, the earlier the intervention, the greater the impact on the child's development.

The fundamentals with which this program deals include: a more precise command of language; conceptual tools to interpret the environment; discriminating more sharply between nuances of those concepts; manipulating the environment so as to obtain better information in order to communicate more effectively; attending to relevant stimuli; and the ability to delay responses until a sufficient amount of information is available to make the response a correct one and to persevere with a task under adult guidance.

Population: The total population of this in-process 7-year study consists of 120 two-year-old children, 120 three-year-old children, and 70 children placed in a control group for assessment purposes only. All the children are Negro, male, and from all social strata of Manhattan.

Curriculum: The children coming to the center have been placed in either a Training Group or a Discovery Group. The purpose of the latter was to allow the investigators to isolate those effects due to the teaching of specific concepts, and it will not be dealt with further here.

The Training Group children are being systematically taught concepts selected to increase their ability to make discriminations along dimensions of same-different, size, texture, position, form, quantity, direction, and movement.

Method: Each child and his instructor interact on a one-to-one basis, every week for two one-hour sessions over an eight-month period. Thus, this is more a situation where each child comes in for training, on a scheduled basis, rather than a preschool program as we usually think of it.

In an effort to train the children along the conceptual dimensions mentioned under "Curriculum", Palmer has set up a framework for training. In general there are four steps for teaching each concept: (1) the instructor demonstrates and labels an instance of the concept; (2) the child performs an action related to the concept while the instructor labels it for him; (3) the child indicates his understanding by responding appropriately to the instructor's request to demonstrate an instance of the concept; and (4) the child uses the concept label appropriately.

The program specifies, in sequences of complexity, series, stages and levels for each concept area. The order of presentation of concepts has been preselected as a result of the assessment of 180 2.8-year-olds, with those known by most children taught first, and those known by least presented later in the training sequence.

Criterion measures have been set up to determine whether the child has learned the concept.

The teachers in the program try to make the training situations as enjoyable as possible for the child. They are instructed to allow the child to proceed at his own speed, and to be sensitive to the importance of the child solving a task on his own and to possible distress if he cannot cope with a task. The amount of support given and the means of doing so are adapted to the particular child an instructor is working with. If a child rebels in a particular situation, the instructor works with something else for awhile. If the child rebels at everything, the instructor uses her intuition to work training procedures into free play.

The instructor is given a great deal of latitude in her feedback. It appears that she uses empathy, sternness or whatever she is most comfortable with. However, she is reminded that she is interpreting what is happening in the child, and it might be

profitable for her to evaluate her frame of reference by discussing it with other staff members.

Assessment Indices: The children were assessed on a battery of measures before and after training. They will be tested annually thereafter until they finish first grade, as are the control groups.

The three-year-olds' assessment measures are included on a "Battery of Performance Measures"; the content and way tests are administered varied depending on age (2-3) of child. They include language assessment, verbalizations (time sample), concept familiarity index, Stanford Binet, PPVT, persistence at a boring task, embedded figures, sequence, simple perceptual discrimination, motor battery, labelling, discrimination problems, body parts, body positions, delayed reaction, general information, grouping, sorting, conservation (number and length), and seriation.

Results: Short term results have shown:

1. Contrary to other studies, up until 3 years, 8 months, no differences in performance were shown as a function of social class. At 3 years, 8 months, the differences were not yet significant.
2. Both 2 and 3 year-old children having received the Training Program or the Discovery Program out-performed middle-class controls who received no program.
3. Those children trained at 2 years to 2 years, 8 months, were still superior to the control group children at 3 years, 8 months.

Comments: This program (in contrast to Weikart's) is one where the overall program is "investigator centered" and in the teaching situation, the program is "teacher centered."

References:

Palmer, F. H. Concept training curriculum for children aged two to three years and eight months -- manual for instructors. Institute for Child Development and Experimental Education, City University of New York, 1968.

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Peabody Language Development Kit
(Levels #P and #K)

The Peabody Language Development Kit "is designed to stimulate oral language and verbal intelligence, and therefore to enhance school progress." All four levels of the PLDK (#P - prekindergarten; #K - kindergarten; #1 - first grade; #2 - second grade) emphasize three psycholinguistic processes - reception, expression, and conceptualization. Reception includes the auditory, visual, and factual senses; expression may be vocal or motor; and conceptualization may take the forms of divergent thinking, convergent thinking, and associative thinking. The training of global oral language rather than specific training on selected psycholinguistic processes is stressed.

The PLDK model, which was designed to improve the oral language facility and verbal intelligence of the disadvantaged and retarded, draws on Osgood's linguistic theory (1957), Torrance's work on creative thinking (1962), and Guilford's model of the human intellect (1959). In addition, verbal learning research (McGeoch & Irion, 1952), Skinner's behavior modification techniques (1957), and behavior theory and research (Ellis, 1963; Vergason, 1964) are utilized. It should be noted that the Illinois Test of Psycholinguistic Abilities (Kirk & McCarthy, 1961) is also based on the linguistic theory of Osgood.

In Level #P of the PLDK stress was placed on auditory reception and vocal expression, with emphasis on the establishment of an automatic level of sentence structure reflecting basic syntactical rules. No attempt will be made here to review the research on Level #K or the two elementary school levels of the Peabody series, although Level #K is applicable to the five-year-old preschool population. This literature is carefully summarized in the manual for Level #K and indicates that the program is effective in stimulating oral language development. The evidence is less clear on the usefulness of the lessons in

training intellect and enhancing school achievement - with some notable successes in both cases.

Population: The target population consists of approximately four-year-old disadvantaged or retarded children.

Curriculum: The curriculum includes 23 types of activities intended to develop global oral language and verbal intelligence. The activities are:

1. Activity time
2. Brainstorming time
3. Classification time
4. Conversation time
5. Critical thinking time
6. Describing time
7. Dramatization time
8. Following directions time
9. Guessing time
10. Identification time
11. Imagination time
12. Listening time
13. Looking time
14. Memory time
15. Pantomime time
16. Patterning time
17. Relationships time
18. Rhyming time
19. Speech development time
20. Speed-up time
21. Story time
22. Touching time
23. Vocabulary building time

The curriculum was designed for high interest value. No reading or writing skills and no seat work is involved. Participation is on a group basis, with all children participating together.

Method: The PLDK is designed to be used with groups of children. Involvement of all children is viewed as the instructor's role, and activities are pupil centered and should allow for spontaneity of speech.

The final version of the PLDK, Level #P, includes 180 daily lessons, each of which is divided into a Part A and a Part B, with two activities generally provided in each. Thus there are now 360 sub-lessons. The final version includes more exercises in the grammatical-syntactical aspects of language than did the experimental version, and a series of songs was devised to make certain syntactical rules automatic.

Each lesson operationally identifies those activities which are required of the teacher and responses which are required from the children. The difficulty

of the exercises for a particular "activity" are sequenced from the beginning to the end of the year. General directions for presenting the daily lessons and directions for the use of various stimulus materials (i.e., stimulus cards, tape recorder, puppets, plastic color chips) are given. It is important that the teachers know each lesson well, although the particular group may indicate appropriate additions or changes.

The lessons are to be presented to the children as a game, and the participation of each child is rewarded. Liberal praise, sometimes accompanied by a concrete reward, is used to reinforce even minimal performance. The teacher should be enthusiastic and energetic - in building morale, maintaining interest, and moving through all activities at a lively pace.

Assessment Indices: The assessment instruments used have varied with investigation, but the following instruments have been used one or more times: ITPA; Peabody Picture Vocabulary Test (PPVT); Stanford-Binet Form L-M (S-B); Test of Grammar adapted from Berko (1958); and the Caldwell Preschool Inventory.

Results: A more detailed description of the results of the three studies (Keehner, 1966; Morris, 1967; Parker, 1969) which have evaluated the effectiveness of the PLDK, Level #P, may be found in the appendix.

Morris (1967) found, after a seven-month treatment period, that children receiving daily lessons from the PLDK improved their scores on the Binet by 9.6 points (as opposed to 7.8 points for the control group), and they gained an average of 7.2 months on the ITPA (while the control group gained an average of 3.9 months). However, after instruction both experimental and control groups scored below their age norms on the Test of Grammar.

Seven months of training with the PLDK, Level #P, was also effective in increasing ITPA scores of mentally retarded children (Keehner, 1966). The mean language age gain scores in months were 10.2, 14.2, and 14.0 months for the three sub-groups of Adjustment, Pre-Kindergarten, and Kindergarten children, respectively.

Parker (1969) used a mobile laboratory as a classroom for presentation of the PLDK, Level #P, to rural, relatively isolated four-year-old children. This study demonstrates the feasibility of using mobile instructional units to "take" preschool programs to children in rural areas. "Readimobile" sites were located where about 15 children could attend, and the Readimobile visited each site twice weekly, with each stop being two hours in length.

Parker (1969) found that Ss receiving instruction with the PLDK, Level #P, for nine months scored significantly better than their controls on Binet, ITPA, and Caldwell. This group receiving the PLDK for only three months showed no superiority to its control group. In addition, the black, lower-class children receiving the PLDK for nine months did not perform significantly different from a white middle-class group receiving a general enrichment curriculum on total scores of the Binet or Caldwell. On the total ITPA the nine month Peabody group was inferior to the middle-class group receiving the general enrichment curriculum but was not different from the white, middle-class control group.

In addition to demonstrating the advantages of a mobile classroom, Parker demonstrated the effective use of paraprofessionals. The Readimobile was staffed by two indigenous high school graduates, who were trained in the use of behavior modification techniques and "packaged" preschool curriculum.

In sum, Parker calls for a component approach to curriculum development and a focus on criterion performance testing.

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Pennsylvania Preschool and Primary Education Project

Orientation: The Pennsylvania Preschool and Primary Education Project was initiated in 1963 to gather and analyze information about the behavior of culturally disadvantaged children so that this information could then be used "to develop and institute a comprehensive methodology administered by the school system to improve the education of disadvantaged children." This project began with one school, was expanded to seven school districts in its second year, and in its sixth, final year worked intensively with two districts, one of which was involved for six years, the other for five years. The information presented here will deal primarily with the year 1968-69.

Five objectives were listed within the goals of developing and operationalizing a comprehensive school-administered program for disadvantaged children:

"1. To develop an education program which compensates for certain specific behavioral deficits of the children from culturally disadvantaged environments.
2. To improve the educational preparation of teachers and other professionals who are presently serving or will serve the culturally disadvantaged child.
3. To develop more effective relationships between health and service agencies and the schools so that they can better serve the children and the parents of families living in culturally disadvantaged neighborhoods.
4. To change the attitudes and behavior of parents so that they will exert a positive influence on the educational development of their children.
5. To motivate and assist school districts in the continuance of preschool and primary programs as part of their regular function."

Thus the Pennsylvania Project was concerned with both the child and his environment. "It is the contention of the Pennsylvania Project that inadequate attention to the various significant elements in the child's environment, inadequate program time for the

child himself, and the inability to affect the regular school program so that it can knowledgeably receive preschool and primary project participants are critical factors in accounting for many such projects not living up their expectations."

The project did not employ a tight research design or control groups, but emphasized the development and implementation of a comprehensive program with evaluative measures to determine the educational progress of the children.

Population: One of the school districts in which the Pennsylvania Project was implemented was rural, the other school district could be classified as urban or suburban, but both were in disadvantaged areas. The Rural School was located in Appalachia and served a number of small and scattered settlements. The approximately 122 children enrolled in the project came from poor homes -- low yearly income, relatively large families, low educational status, frequent lack of indoor plumbing and central heating. Children were from ages normally associated with kindergarten through second grade. The Urban School was located in a large, poor community in eastern Pennsylvania. There were 350 children enrolled in the project, and many of the children were from homes with low incomes, relatively large families, and low educational status. The children in the Urban School during the 1968-69 school year were from nursery to third grade age level.

Curriculum: The educational program focused primarily on language arts and mathematics, with the curricula for the Rural School and the Urban School being very similar. The language program was based on the following three premises:

"1. Motivation and facility in language structures conditions what the child learns and how he learns, and also sets the limits within which future learning can take place.
2. To use language to express logic is an outcome of activity and experiences, combined with language during and following the experience.
3. Oral language facility and motivation and awareness of the relationships between

> talk and print are developmental abilities essential to the successful learning of reading and writing, and concurrently reinforcing activities in the progress of these skills."

The program was designed to develop the child's ability to communicate effectively, first through listening and speaking and later through reading and writing.

The developmental program in language arts which was developed by the Pennsylvania Project is presented in the Appendix of the project's 1968-69 final report. The program is a sequenced list of behavioral objectives which begins with goals which should be achieved at an "informal readiness level" and extends to Level 24 (a typical learner would reach this level at C.A. 8). The typical learner would progress from "informal readiness" at age 4 to Level 10-12 at age 6. The speed of moving through these levels would vary depending upon the ability of the child. At each level there are approximately 10 specific skills which the child must master before progressing to the next level, and the books which should be utilized at each level are designated.

The math program was based on the premise that "mathematical ideas develop slowly and can be developed and understood most easily through activities that call for thoughtful manipulation of concrete objects and those activities that make children aware of mathematics in their daily lives." The child's own experiences and interests are the first content of the math program (as they are of the language program), and children are encouraged to discuss ideas, ask questions, and gather information.

The specific math developmental program is also presented in the Appendix of the 1968-69 final report. It is based on the Laidlaw series, 1965 and 1968. The concepts and manipulations to be learned by the children are carefully specified.

Method: Children were grouped on the basis of their level of functioning in various activities, rather than on the basis of age. The child's level of functioning and the needs of the child were constantly

re-evaluated, and groupings were shifted when necessary. The children, in general, progressed at their own rates, with the program being defined as a "diagnostic ungraded approach to teaching." A series of instruments (Adapted Monroe Oral Language Scale, S.M.S.G. Individual Math Inventory, Metropolitan Achievement Tests, and California Test of Mental Maturity) were administered at the beginning of the year to provide diagnostic information concerning the children as well as information to be used in program evaluation. "There was a consistent effort to encourage teachers to identify conceptual stages of growth in their children so that they could guide the child through one stage while preparing him for the next more difficult one." The active teacher was considered the critical factor in the child's education.

A staff of four teachers were responsible for the 122 children enrolled in the Rural School, while a staff of 12 teachers and 8 aides were responsible for the 350 children in the Urban School. The larger number of staff and participants in the Urban School reflects the deep involvement of the Urban School with the experimental program.

The Pennsylvania Project had definite behavioral objectives, sequenced in order of difficulty, for both the language arts and mathematics components. However, the teacher exercised autonomy (with the central staff available to help) in determining the best way for each child to succeed on each of the sequenced objectives. The school environment encouraged experience with various materials and verbal interaction, which teachers initiated and supported. In addition to the language and math time-blocks, there was one period each day during which the children could select their own activities and their own groups, with the teacher being available to answer and raise questions.

Assessment Indices: The major evaluative instruments were achievement and aptitude tests administered before and after the year's program. The Oral Language Scale (Monroe, 1951) consisted of the presentation of a stimulus picture which the child was asked to "tell about" and a request for definition of five words

the child had used in his description of the picture. The child was rated on four criteria: quality of ideas, ability to define words, willingness to communicate, and sentence structure. Another test used which is diagnostic in nature was the Science and Math Study Group Individual Math Inventory (SMSG). This test stresses manipulable and concrete materials and relevant responses and basically evaluates a child's readiness to learn mathematical concepts. The test was modified and structured into 2[illegible] subsections ranging in difficulty from object recognition to ordering and classification. The more common assessment indices used were the Metropolitan Achievement Test (MAT), the California Test of Mental Maturity (CTMM), the Metropolitan Reading Readiness Test (MRT), the Caldwell Preschool Inventory (PSI), and the Slosson Intelligence Test (SIT). Only the Oral Language Scale, the SMSG, the MAT, and the CTMM were administered to children in attendance at the Rural School, while Urban School children were evaluated on all measures.

Results: For children attending Rural School at the primary level only two subtests on the OLS -- Ability to Define Words and Sentence Structure -- showed significant improvement. On the SMSG 12 subtests were eliminated due to perfect performance, and of the remaining 13, significant gains were made on 11. All pretest-posttest gains on the CTMM were significant. Only the OLS and CTMM were administered to children at the preprimary level. Total score gain on the OLS and all subtest score gains except for Quality of Ideas were significant. Nonlanguage and total I.Q. gains were significant on the CTMM.

The OLS, SMSG, MAT, and CTMM were administered to primary level children at the Urban School. There was significant improvement only on the Sentence Structure Subtest of the OLS. Eleven subtests were eliminated from analysis of the SMSG because of perfect performance. Significant gains were found on 10 of the remaining 14 subtests of the SMSG, on the MAT, and on the total I.Q. as measured by the CTMM.

At the Urban School the Oral Language Scale, Metropolitan Readiness Test, Preschool Inventory, and Slosson Intelligence Test were administered to pre-

primary children. All subtest and total scores on the OLS improved significantly from pre- to posttest, as did all subtest and total scores on the PSI. With the exception of one subtest (Word Meaning) the total and subtest scores on the MRT increased significantly. Finally, I.Q. as measured by the SIT was significantly increased.

Thus "it can be said decisively that the children involved did not regress scholastically or remain static, but rather they improved, often dramatically, as reflected by the measurement devices employed."

Delivery: In this program, a distinct and committed effort was made to provide a continuity in the child's experience that would be conducive to his immediate and continued educational progress. To this end teacher development, parent involvement, agency coordination, and program establishment in the school system were stressed.

Teachers were aided in two main ways by the central staff: (1) Tests were administered and analyzed by the central staff, after which the Project Coordinator worked with the teachers once or twice a month "to discuss the procedures being developed and used in the context of the project philosophy."

The development of the teachers was evaluated formally by an inventory consisting of 70 multiple-choice items dealing with the education of culturally disadvantaged children: "The Teacher and the Disadvantaged Child: Ar Inventory of Knowledge and Beliefs." Teachers completed the inventory twice, first as they thought experts would and then as they personally believed. Pretest-posttest gains (before and after the school year) were large and significant for both expert and personal belief, indicating an increase in the knowledge of the teachers about the education of the culturally disadvantaged.

The coordination of the preschool and primary project was sought in the Urban School area, although the isolation of the rural areas limited the nonschool resources which could be used. The Urban School actively and successfully worked with other agencies. A social worker was provided by the State Department of Public Welfare, and at the end of the project a

request was submitted for a social worker to remain at the school to continue work as a coordinator of services and liaison between parents and the school. Secondary schools sent students to work with the Urban School children. Also, the local psychiatric clinic, a local medical school, the Child Welfare Department, and the Family Service Association became involved in various ways.

The parent program attempted to actively involve parents with the education of their children, to acquaint them with the nongraded program, and to seek answers for questions asked by parents. Distance was again a problem at the Rural School, but several general meetings, pamphlets on home teaching, and telephone calls served to evoke quite a bit of participation from the parents.

At the Urban School the parent program was active and very effective, with parents helping in the classroom, holding weekly meetings, publishing a news pamphlet, and writing letters, signing petitions and joining action groups to effect changes in matters of relevance to education and poverty.

Establishment of the program so that it could function according to the wishes of the local school district and independent of the Pennsylvania Project was extremely important during the final year of the project. Four primary efforts were made: (1) to attain continuing financial support, (2) to develop effective communication with other schools who received project children, (3) to have a sufficient influence on the staff that they could continue to develop on their own if resources were not later available, and (4) to produce a graphic bulletin on the Urban School Project.

The school district has decided to support the Rural School with its allocation of federal funds and to expand it into other areas, and the consultants to the Rural School are impressed with the development of the teachers. The school district and federal funds will also provide support for the Urban School, a summer workshop has involved teachers in older elementary grades, and the descriptive booklet is near completion.

References:

Curtis, C. A. and Berzonsky, M. D. Preschool and primary education project 1966-67. Annual Progress Report to the Ford Foundation. State Departments of Public Instruction, Public Welfare and Health, Harrisburg, Pennsylvania.

Kershner, K. M. Pennsylvania preschool and primary education project 1968-69. Final Report to the Ford Foundation. State Departments of Education and Public Welfare, Harrisburg, Pennsylvania.

McInerney, B. L., Durr, B., Kershner, K. M., and Nash, L. A. Preschool and primary education project 1967-68. Annual Progress Report to the Ford Foundation. State Departments of Public Instruction and Public Welfare, Harrisburg, Pennsylvania.

Preschool and primary education project 1964-65. Annual Progress to the Ford Foundation. State Departments of Public Instruction, Public Welfare and Health, Harrisburg, Pennsylvania.

Preschool diagnostic language program. (Experimental edition). Department of Public Instruction, Harrisburg, Pennsylvania, 1966.

Robison, H.
Project Child

Orientation: The program has strong emphasis on language and cognitive development and includes some skill learning in specific content areas. The theories on which the program is based are: (1) Piaget's specifications of normative cognitive development which can be used as a yardstick for a child's progress and pace of growth; (2) Psychoanalytic theory is cited as the basis for utilizing fantasy and playful manipulation for the purpose of discharging tension and for internalizing and restructuring experience; and, (3) O. K. Moore's theory that games, puzzles, and aesthetic experiences are the folk models children use to play their way to becoming theorizers, was the basis for the use of imaginative games as vehicles for the tutoring of children.

This program appears to have an emphasis on language and one of the major aims of the program is to have the children become familiar with many of the phonemes and structures of the standard English dialect. Hence, the children develop skills and the flexible use of either their native dialect or the standard English dialect depending upon the appropriateness in a given situation. Three basic goals within the language curriculum relate to vocabulary acquisition, cognitive uses of language, and uses of symbolic forms of language, primarily writing and reading.

Population: Project CHILD is based on a 4 year empirical study using four and five year olds, mostly Negro children who speak non-standard English dialects, and live in New York City's Central Harlem and the South Bronx.

Curriculum: Content areas were selected which offered significant learning opportunities, and the diversity needed for practicing the same basic cognitive skills in contexts increasingly different from the initial ones. The curriculum design was

divided into 8 content areas: cognitive skills, music, mathematics, language, science, sociology, geography, and economics. Each content area was further broken down into sub-categories; for example, "cognitive skills" is comprised of 3 different series of learning tasks -- "same-different concepts", "patterning", and "classification."

The curriculum design incorporates social learning with specific activities as part of a routine.

Method: Project CHILD is a classroom based program, apparently involving a minimum of one teacher and some aides. The program stresses the tutorial one-to-one instruction on structured models. Thus teacher retraining was required in the piloting of this program in order for the teachers to change classroom arrangements and scheduling so as to free themselves and their aides for instruction of one child at a time.

The child is the main focus of control in the program since it is his choice to be either involved in play or in structured tasks. Even during the tutorial sessions when the teacher is following a structured curriculum, the specific activities are not totally prescriptive. The teacher is encouraged to improvise alternate activities geared toward the same learning goals, in view of the individual child with whom she is working.

Project CHILD has incorporated active forms of children's self-chosen play with selected materials and a series of structured tasks and games.

The structured curriculum design includes behavioral goals in each content area. The procedure involves teacher modeling, demonstration and direct instruction designed to lead to the children's independent and playful use of the games and tasks, as they become assimilated and internalized as their own. General tasks are developed from least challenging to the most complex in the following order:

a. Sensori-motor activity, mainly free and playful action, and manipulation of objects.
b. Sensori-motor activity with simple verbal learning.
c. Physical responses to teacher's simple verbal instructions, based on action or manipulation of objects, in unambiguous terms.

d. Transfer of physical responses from manipulation of one group of objects to manipulation of different but similar objects.
e. Verbal responses added to physical responses.
f. Very gradual introduction of more than one variable, where only one variable must be identified.
g. Introduction of simple variations in task.
h. Children take over well-learned task and work independently, alone, or with each other.
i. Children construct different, but similar, tasks transferring previously learned physical and verbal responses.
j. Task variations are introduced with gradually increasing complexity, that is, fewer cues are given to child, and child is responsible for making the necessary selections.
k. Criteria for manipulation and action change from physical-perceptual characteristics, such as color, shape or pitch, to such non-perceptual elements as contrast (not the same), class membership (dishes or fruit), symmetrical relationships (from biggest to smallest), relationships based on number property (how many).
l. Variability changes from varying on only one dimension, such as color, to two dimensions, such as color and shape.
m. Materials change from one set of objects to object representation with other physical objects.
n. Materials change to pictorial and graphic representation.
o. Numeral and word symbols are used in association with objects, and with objects and pictures.
p. Manipulation of objects and action is changed to verbal description and verbal prediction, followed by manipulation.
q. Children check task results for each other.
r. Children construct their own tasks.
s. Children read task instructions and make physical responses.

t. Children read simple sentences.
u. Children construct rules for their own games and playfully practice them.

A battery of diagnostic tests or checks is proposed for teacher evaluation of each child's progress and needs. This battery samples most of the behavioral goals of the program and the battery is suggested for use: (1) monthly - for children with special needs; (2) twice a year - for all children to identify entering skills and progress during the year; (3) selectively - to one or all children after a particular content and instructional sequence, to determine how much progress was achieved.

Among the general rules for classroom behavior are "instruction instead of punishment" and "instruction by positive reinforcement, such as praise of objective statement of rule compliance." For example, it is felt that it is particularly important to refrain from correction of children's speech and important not to interfere with the spontaneous production of it. In the structured curriculum there are games which include practice with selected standard speech forms. In addition, the teacher acts as a model in elaborating and expanding the child's speech appropriately and in context.

The four year empirical study of the program terminated in 1969, and there is now a final version of a teacher-tested curriculum design. There is also information available on evaluating the teachers' reactions to using this program.

Assessment Indices:

1. Peabody Picture Vocabulary Test
2. Goodenough Draw-a-Man Test
3. Child Behavior Test (constructed by Professor Herbert Rusalem of Teachers College, Columbia University)

Results: The children in four preschool classes in 2 Central Harlem schools gained about 15 points on the Peabody Picture Vocabulary Test, achieving a mean posttest I.Q. score of 86, and a standard score on the Goodenough Draw-a-Man test of 87. On the Child Behavior Test posttest scores comparing experimental and control groups did not show statistical significance.

The author feels that the program was not given a fair test in 1968-69 school year due to the turmoil of the teacher strike in New York. She also cites the fact that the group who had the only teacher who was participating in the program for a second year reached a mean PPVT posttest score of 91.9 and a standard score of 98.1 on the Draw-a-Man test.

Comments: This program was not clearly spelled out in several instances, but there is a monograph (listed as "in process" in the bibliography) by Helen Robison on this project, which will be, or is, probably more complete.

References:

Robison, H. Project Child: Evolution of a curriculum to heighten intellectual and language development. Paper presented at NAEYC, Salt Lake City, Utah, November, 1969.

Robison, H. F. and Schwartz, S. L. Preliminary teachers guide to curriculum to heighten intellectual and language development. Teachers College, Columbia University, 1969 (mimeo).

Sapon, S. M.
Verbal Behavior Laboratory

Orientation: The basic theoretical orientation involves the experimental analysis of behavior in terms of a "three term contingency model" (control stimulus, response, and consequences of the response) to ensure generalization and maintenance of verbal behaviors outside the school setting.

Population: Selection criteria was such that the group was composed of socio-economically disadvantaged males and females, black and white, between the ages of 30- and 42- months of age.

Curriculum: Language.

Method: In the application of the general principles of the "three term contingency model," teaching strategies were arranged so that: 1) behaviors acquired in school would be functional outside the school; 2) behaviors acquired under tight stimulus control would be maintained by natural conditions; 3) the school setting would maximize teaching opportunities; and 4) the teaching environment would be optimally suited for the teaching occasion.

Complex behaviors were carefully reduced to their simple component behaviors which were requisite and antecedent to the complex behaviors. These simpler behaviors were termed RABs (Requisite Antecedent Behavior), and were carefully sequenced "bits" of behavior.

The program was designed so that no behavior was introduced until its requisite antecedent behavior "bits" (RAB-bits) had been established and a given criterial level of performance exhibited. All teaching goals were clearly and specifically stated and records and evaluations were made of all teaching occasions.

The physical facilities consisted of a three-story remodeled private dwelling. The first floor contained the experimental room containing various devices for providing reinforcement and acquisition of RABs (this

was termed the RAB-bit room). It is difficult to determine the Pupil-Teacher ratio, but it was approximately 10:3.

The children received daily structured group activities, individual instruction in the RAB-bit room, and individual instruction in other portions of the house.

Teaching sessions were held from 10:00-12:30 Monday through Thursday for a total of eighty-seven school days. Behavioral baseline measures were taken during the first two weeks, the structured program began during the third week, and the final week was spent in posttesting.

Assessment Indices: 1) Goodenough-Harris Draw-a-Man Test; 2) PPVT ; 3) Denver Developmental Screening Test; 4) Sapon Intelligibility Function Test (SIFT); and 5) a scoring procedure used at the end of each session in which the percentage of criterion responses out of the total for each class was calculated and recorded.

Results: No formal testing of the program took place. However, pre- and post-test means are provided for all measures.

1. Gains of 19.3 points were found on the Goodenough-Harris Draw-a-Man Test.
2. Gains of 11.2 I.Q. points were found for the PPVT.

Delivery: Program materials (with pictures) are provided in the final report.

Comment: No statistical results were reported since each child was considered his own control.

Reference:

Sapon, S. M. Operant Studies in the Expansion and Refinement of Verbal Behavior in Disadvantaged Children. Final Report. University of Rochester. Contract No. OEO-2411, 1969.

Smilansky, S.
Kindergarten to Promote Cognitive Abilities

Orientation: The program was designed to use the kindergarten year to promote cognitive abilities, to impart basic information, and to modify attitudes essential for success during the first two years of school.

Population: The population of Israel is composed of "European" and "Oriental" groups, the latter generally being ill-equipped to participate fully in the mainstream of Israeli culture. Smilansky attempted to bridge the gap for the underprivileged immigrant children through a preschool intervention program.

Curriculum: (1) promote cognitive abilities, (2) impart basic information, (3) enlarge vocabulary, (4) modify attitudes.

Method: After studying the standard, non-directive kindergarten in Israel, Smilansky concluded that this approach was inappropriate to the needs of oriental children. Then she did a comprehensive analysis of the tasks required of first grade children, compiling a list of approximately 60 necessary task competences. Next she constructed a curriculum and re-trained teachers specifically to induce in kindergarten the prerequisites to success in first grade. Thus, she created a kindergarten which was designed to prepare children for first grade, just as first grade prepares children for second grade.

Assessment Indices:

1. Stanford-Binet
2. WISC
3. "66 Abilities Battery"

Results:

1. Significant rise in I.Q. as measured by Stanford-Binet for experimental group.
2. Experimental group's I.Q. not significantly different from that of European children.
3. Given proper training, an average teacher could induce desired change in a class of 35 children.

References:

Smilansky, S. The Effects of Sociodramatic Plays on Disadvantaged Preschool Children. New York: John Wiley, 1968.

Smilansky, S. Szold Institute, Jerusalem, Israel. In P. C. Lee (Ed.), "The first six years of life: a report on current research and educational practices." Genetic Psychology Monograph, 1969.

Sprigle, H. A.
Learning to Learn Program

Orientation: The program is based on the assumption that cognitive growth proceeds in an orderly sequence. This sequence proceeds from motor to perceptual to symbolic aspects of cognitive functioning. In the motor stage the child is concerned with manipulating the world through his own actions. The child establishes relationships between experience and action and in so doing becomes aware of identifying features of objects in the world around him. It is through perception of the world that he learns about relationships between things he observes. It is necessary that the child be given the opportunity to perceive, recognize, categorize and discover relationships. These skills lead to the symbolic or cognitive stage when the child begins to talk about and deal with the ability to represent the present, recall the past, and to think about the "possible."

The primary objective, as the name of the program implies, is to help the child to learn the process of learning. The program emphasizes the importance of language as a tool for thinking and reasoning. But beyond that the program is designed to give the child an opportunity for the development of strategies of gathering information, problem-solving, and decision making. The thrust is to provide the child with internal feelings of independence and achievement that he can cope with and master his environment.

Said another way, the aim of the program is to get the child to become active in the learning process and to make his own discoveries, formulate his own questions, and learn from his own activities, observations and formulations.

Population: Four and five year old children. Pilot studies have been conducted on children from lower socio-economic class families and children from lower-middle socio-economic families. (The latter population was selected because it constitutes the largest segment of school children. The criteria for selection of lower middle class were that families had a high school education or less and occupationally had blue or white collar jobs. These families had an average income of $6,400.)

Curriculum: The skills and concepts which children acquire:

1. Information gathering and processing through the use of all the senses.
2. Observation, identification, and labeling of objects.
3. Attention to and concentration on attributes that discriminate one object from another (what makes a pear a pear).
4. Classification.
5. Classes and sub-classes.
6. Identification and classification on the basis of reduced clues.
7. Encouragement in the use of guesses and hunches.
8. Decision making.
9. Use of past learning to make decisions.
10. Problem solving.
11. Reasoning by association, classification, and inference.
12. Anticipation of events and circumstances.
13. Expression of ideas.
14. Imagination and creativity.
15. Conventional (in contrast to idiosyncratic) communication.
16. Operations on relationships.
17. Exploration of numbers and space.

Method: Two teachers and two classrooms are used. One room is larger, and used as a classroom for a large group engaged in a variety of activities. A smaller room is used by one teacher and a maximum of four children who are homogeneous with respect to level and rate of learning for short sessions devoted to planned sequential activities. The learning atmosphere is stressed. The other children must show the person who is responding respect by being quiet so he can "think with his brain." It is felt that this emphasis soon makes it apparent to the child that he is important and what he is trying to achieve is worthwhile.

The teachers in the program are child rather than subject matter oriented. Their major purpose is to pose problems for the children, ask questions and stimulate interest and curiosity. Since it is the

aim of the program that the children learn from their own activities and thoughts, the teacher must be perceptive and sensitive to how the child works with and uses the materials. In the pilot study with lower middle class children there were 23 children involved. It would seem the ratio was 23 students to 2 teachers.

There are specific behavioral objectives and they are incorporated into games and activities. Sprigle felt that games were the natural choice for something to motivate and stimulate children's interest. The games employed were constructed around 5 familiar content areas (clothing, food, animals, furniture and transportation). The program began with a few examples of each content area and gradually expanded to include more members of the class. A variety of games and activities were developed, each being one step beyond the previous one, and each incorporating the experience and knowledge previously gained by the child, so that each of the 5 content areas are revisited and repeated in a variety of ways, the sequencing always moving one step beyond the concrete toward the abstract.

Teachers give immediate feedback on child's efforts -- i.e., emphasis is placed on the process of problem solving and not on the accuracy of the solution. This approach encourages decision making and the development of flexible cognitive sets and strategies for learning. The program would not involve anything which might produce fear of failure or disapproval.

Assessment Indices:

1. Binet Intelligence.
2. School Readiness - screening test.
3. ITPA - Vocal Encoding.
4. ITPA - Auditory-Vocal Association.
5. ITPA - Visual Decoding Subtest.
6. Bender Motor Gestalt Test.
7. Metropolitan Readiness Test.
8. School Readiness Screening Test.
9. Sequin Form Board, Arthur Revision.
10. Rail Walking Test.
11. Human Figure Drawing.

Results: This program had data to help answer the question, "What kind of child can best benefit from the experimental program?" They have two studies dealing with an evaluation of the Learning to Learn Program with five-year-olds. The first was a study comparing matched groups of 25 culturally deprived Negro children; the second study compared matched groups of lower-middle class children. In each case there were three comparisons: (1) children who received the Learning to Learn Program; (2) children receiving traditional training in an established kindergarten in the community; and, (3) children who had no formal preschool training, but remained at home during the school year.

COMPARISONS OF CULTURALLY DEPRIVED AND LOWER-MIDDLE CLASS CHILDREN AT THE COMPLETION OF KINDERGARTEN

Measures		Learning to Learn Program Mean	Traditional Program Mean	No Program Mean
Binet Intelligence	Culturally Disadvantaged	104.12	90.33	83.29
	Lower-Middle Class	112.83	107.33	
Binet Vocabulary	Culturally Disadvantaged	5.62	3.71	2.71
	Lower-Middle Class	7.00	6.19	
Bender-Gestalt (error score)	Culturally Disadvantaged	11.96	15.46	17.33
	Lower-Middle Class	7.91	11.48	
Metropolitan Readiness Test - Total	Culturally Disadvantaged	66.46	44.71	40.79
	Lower-Middle Class	66.78	47.38	
School Readiness Screening Test	Culturally Disadvantaged	20.08	13.79	13.21
	Lower-Middle Class	24.65	22.24	
Sequin Form Board (time score)	Culturally Disadvantaged	23.46	31.46	33.08
	Lower-Middle Class	21.26	21.62	
Rail Walking (error score)	Culturally Disadvantaged	10.92	31.83	28.21
	Lower-Middle Class	10.78	16.48	
Human Figure Drawings	Culturally Disadvantaged	16.33	10.04	7.08
	Lower-Middle Class	20.09	14.52	

Delivery: Both mothers and fathers participated in monthly discussion groups, which were divided into 2 groups so they were small enough to encourage active participation. Two meetings with individual sets of parents were held midway and at the end of the school year.

Comments: This program is in kit form.

References:

Sprigle, H. A. A fresh approach to early childhood education and a study of its effectiveness. Learning to Learn, Jacksonville, Florida.

Sprigle, H. A. Inquisitive games exploring number and space. Teacher's guide. Chicago: Science Research Associates, Inc., 1967.

Sprigle, H. A., VanDeRiet, V., and VanDeRiet, H. Sequential learning program for preschool children and an evaluation of its effectiveness with culturally disadvantaged children. Paper presented at American Education Research Association, New York, March, 1967.

Sprigle, H. A., VanDeRiet, V., VanDeRiet, H., and Sprigle, J. A sequential approach to early childhood education and a study of its effectiveness. Learning to Learn Program, Jacksonville, Florida, January, 1969.

Weikart, D.
Cognitively Oriented Ypsilanti Preschool

Orientation: This curriculum is part of a 2-year demonstration project begun in 1967 aimed at the study of relative curriculum impact. The theoretical base for this program is the developmental theory of Jean Piaget.

It is assumed that the two major complementary capabilities which a child must develop in order to gain a basic understanding of self and of world are: (1) the ability to construct and make use of relationships among objects and events in his environment, and (2) the ability to construct meaningful representations of himself and his environment and to deal with these representations in more and more complex and abstract ways.

Piaget's outline of the normal, invariant, developmental progression has been used as a framework for structuring this curriculum in two ways:

1. Levels of symbolization
   a. the concrete "object level"
   b. the parts indicating the whole "index level"
   c. the representational "symbol level"
   d. the representation through words "sign level"
2. Levels of operation
   a. the directly physical "motoric level"
   b. the "verbal level"

This program is also aimed to increase attention span and concentration and to help bring the child's behavior more under his conscious control. To this end the principles of sociodramatic play and impulse control suggested by Sara Smilansky are incorporated into the program.

The development of language skill is based on the techniques of: (1) "verbal bombardment", developed earlier by Weikart, and (2) language patterning, adapted from the work of Bereiter and Engelmann.

In practical terms, this cognitive curriculum is a direct outgrowth of the Perry Preschool project (1962-1967), conducted at Ypsilanti Michigan.

Population: The children selected for participation in this program were three and four-year-olds living in the Ypsilanti, Michigan, school district, who were found to be both "culturally disadvantaged" and "educably mentally retarded."

Curriculum: The Cognitively Oriented Curriculum has four content areas:

1. classification
2. seriation
3. temporal relations
4. spatial relations

The activities pertaining to each of these content areas are implemented along the levels of symbolization, into which the levels of operation are integrated. Thus, there is a three-sided framework into which program activities have been planned. Cooperative sociodramatic play is also an essential element in the curriculum. It is set up so that several criteria are adhered to to bring about the maximum benefit of the activity.

Method: There are about 16 children to two teachers each year. In addition, teaching aides, who are residents of the school district, are assigned to each class. The class meets for half a day and there is a teaching session in the home of each child for 90 minutes every other week.

The classroom is divided into four distinct areas with equipment and materials arranged so that the child's learning during the course of the year will tend to follow the path from the simplest to the most complex in each of the curriculum's content areas. There is a large motor area, a small motor area (referred to as the "quiet table"), a housekeeping area, and an art area.

In an effort to increase the child's attention span, aid him in planning and executing self-selected activities and to help him bring his behavior more under his conscious control, the daily routine has been formalized into "Planning Time", "Work Time" and "Group Meeting for Evaluation."

This program is clearly committed to the child's experiencing concepts at all levels of symbolization. The child is the locus of control, although the teacher

has organized much of the daily activity to produce behavior on the child's part to meet clearly defined goals.

Essential to the demonstration nature of this program, there are clearly defined weekly goals. The curriculum implementation follows a carefully planned daily program designed to achieve the curriculum goals. The teachers themselves prepare daily lesson plans at least one week in advance, which forces them to pay particular attention to the use of time in the classroom and to the goals of their curriculum. This also provides an on-going review of curriculum effectiveness. This provision for teacher involvement is a crucial aspect of the overall project.

It appears that the program has definite goals within a sequenced hierarchy of difficulty framework. In the short-term, the structuring of specific activities to meet specific behavioral objectives is flexibly geared toward their success with given children.

Thus, the overall atmosphere is a permissive one into which the teacher introduces structure, and remodels that structure if it is not attuned to the children involved.

Supplementing the preschool sessions are afternoon visits to the children's homes by the teacher. Their purpose is two-fold: (1) to engage the mother in the process of her child's education, and (2) to gear extensions of those activities carried on in school to the individual child. The teachers suggest activities that the mother can engage in with her child during the week and points out household activities, which can be structured so as to include the goals of the curriculum.

Also, group meetings involving the mothers, are held once a month, and some preschool observations are scheduled.

Assessment Indices:

1. Stanford-Binet, Form LM
2. Leiter International Performance Scale
3. Peabody Picture Vocabulary Behavior Inventory
4. Teacher ratings on: a. Pupil Behavior Inventory
   b. Ypsilanti Rating Scale
5. Classroom observation using the OSCAR method

Results: The results available at this time are based on the first year of the program's operation (1967-1968). The replication and second and final year of the study are not yet available. In presenting the results of this demonstration program, comparisons are made with the other two demonstration programs running concurrently with this one, for the purpose of ascertaining differences in curricula thought to have remedial potential for the disadvantaged. The other two curricula are:

1. A unit based curriculum, consisting of the introduction of themes and materials to acquaint the child with a wider environment. There is a permissive atmosphere in the classroom and close attention is paid to the individual social and emotional needs of each child.
2. A language training curriculum, based on the Bereiter and Engelmann task oriented curriculum. This program employs many of the techniques from foreign-language training and includes the teaching of arithmetic and reading.

The preliminary results show that all children in the three treatment groups gained equally in I.Q. The gains in overall functioning level were exceptionally high: the three-year-olds gained 27-30 I.Q. points and the four-year-olds gained 17-24 I.Q. points.

The teacher ratings showed that the children were seen much the same regardless of having participated in different programs. In the classroom observations, again there were no overall differences between groups. Only "total statements per minute" differentiated between the intensity of the language program and the others.

Comments: Weikart concludes that "it appears that children may profit from any structured curriculum that is based on a wide range of experiences and that provides close attention to the needs of individual children and involvement of the staff in total operation." He feels that it is pointless to look for the curriculum for disadvantaged children. Rather, it is

in the process of creating and the creative application of a curriculum that a program is successful. While curriculum development is important, it has greatly overshadowed the need for careful attention to both staff model and the program operation employed by a project.

In 1969 research and teaching staff combined efforts to meet the need for more effective training materials for teachers. To this end, there will be available instructional films on the three demonstration curricula, a video tape of the Cognitively Oriented Curriculum as it is actually implemented in the classroom, and short "Concept" films, illustrating various aspects of the Cognitive Curriculum. Also available will be a comprehensive document on each curriculum, specifically designed for teacher training.

References:

Weikart, D. P. Comparative study of three preschool curricula. Paper presented at the biennial meeting of the Society for Research in Child Development, Santa Monica, California, March, 1969.

Weikart, D. P. Preliminary results from a longitudinal study of disadvantaged preschool children. Paper presented at the convention of the Council for Exceptional Children, St. Louis, Missouri, 1967.

Weikart, D. P., Adcock, C., and Silverman, C. Ypsilanti preschool curriculum, demonstration project. Ypsilanti Public Schools. Project sponsored by U. S. Office of Education, 1969.

COMPARISONS OF PRESCHOOL PROGRAMS

COMPARISONS OF PRESCHOOL PROGRAMS

Empirical comparisons of well known preschool programs are outlined in this section.

Day, D. E. Effects of different language instruction 91
1. Bereiter-Engelmann language program
2. Traditional

DiLorenzo, L. T., Salter, R. T., & Brady, J. J. Prekindergarten programs for the disadvantaged. . . 93
1. Reading readiness materials program
2. Bereiter-Engelmann language program
3. Teaching machines programmed for language instruction

Karnes, M. B , Hodgins, A. S., Teska, J. A., & Kirk, S. A. Effects of five preschool interventions 95
1. Traditional
2. Community-Integrated
3. Montessori
4. Ameliorative (Karnes)
5. Direct-Verbal (Bereiter-Engelmann)

Miller, L. A. Experimental variations of Head Start curricula 98
1. Montessori
2. Bereiter-Engelmann
3. DARCEE
4. Traditional

O'Piela, J. Pilot study of five methods of presenting the summer Head Start program. 99
1. Head Start with Experience Record
2. Frostig
3. Delacato
4. Bereiter-Engelmann

Weikart, D. P. Comparative study of three preschool curricula 101
1. Unit-Based (Traditional)
2. Cognitively Oriented (Weikart)
3. Language Training (Bereiter-Engelmann)

I. Day, D. E. The effects of different language instruction on the use of attributes by prekindergarten disadvantaged children. Paper presented at the meeting of the American Educational Research Association, Chicago, February, 1968.

Introduction: The investigator indicated that if intervention was early enough in the lives of disadvantaged children, changes in language would be effected. To this end, the researchers worked for 10 months with 8 classes of inner-city disadvantaged prekindergarten children on the development of language as an intellectual tool. They were interested in measuring the effectiveness of teaching the children such skills as the appropriate use of a affirmatives and negatives, opposites such as big-little, prepositions, the use of adjectives in classification, and simple relationship or cause and effect deductions. These objectives were taken from those described by Bereiter and Engelmann as the minimum language goals prior to entry in first grade.

Method: The teaching team in each class consisted of a lead teacher, an assistant teacher, and an aide. Objectives for language instruction were the same in each class; instructional procedures, however, were different.

Group A classes (N=49) followed the plan developed by Bereiter and Engelmann for language instruction.

Group B classes (N=38) were organized following a more traditional unit-of-work approach. "In Group B as in Group A, the structure of the sentence, verb form, adjectives, prepositions and deductions were to be taught. However, the behavior of the teacher and content sequence were not specified."

Near the end of ten months of the preschool programs the children were individually administered a language screen, the purpose of which was to get data on the degree to which objectives are being met. Each child was also asked to tell all he could about a toy. These descriptive responses were recorded verbatim. A modification of Sigel's system for organizing language grouping preference behavior was used in analyzing the attributes the children used in describing the toys.

Results:

1. No significant differences between the groups on total language production was found.
2. There was a significant difference between Group A and Group B in favor of Group B in the use of relational contextual type words. (Sigel's system)
3. There was no significant difference between the groups on the use of conceptual category words in describing objects.
4. The largest response category was descriptive part-whole.
5. There was no significant difference between the groups on the use of nouns alone in describing the objects.
6. There was no significant difference between the groups' use of adjectives with nouns as attributes of the objects.
7. There was a significant difference in favor of Group A in the use of color and form in describing the objects.

Comments: The investigator views these results as tentative. The study was to have been repeated in 1969.

II. DiLorenzo, L. T., Salter, R. T., and Brady, J. J. Prekindergarten programs for the disadvantaged: A third year report on an evaluative study. University of the State of New York, State Education Department, 1968 (mimeo).

Introduction: Eight New York State school districts attempted to develop preschool programs for disadvantaged children with the following goals:

1. Increase capacity to learn
2. Greater language development
3. Better self-concept
4. Increased motor development
5. More positive attitude toward school

The basic curriculum in all eight districts was the traditional nursery school pattern with a few variations. In Schenectady, children in one school received individual instruction using reading readiness materials, preprimers, and primers as they were able. In Cortland, which entered the project in its second year, the children were divided for part of their school day into language-pattern groups where Bereiter-Engelmann techniques were employed and discussion groups were directed. Conversation was used for language building. In Mt. Vernon, the children spent a brief part of the day at a teaching machine programmed for language instruction.

Method: The programs operated on a half-day basis with two and one-half hour sessions. Each class of 15 prekindergarten children had one trained teacher and a teacher aide.

The project population for 3 years totaled 1,805; it included 307 nondisadvantaged subjects concentrated in two districts that designated the mingling of disadvantaged and nondisadvantaged as part of their treatment program.

After preliminary testing with the Stanford-Binet and the Peabody Picture Vocabulary Test (PPVT), the children were randomly assigned to experimental and control groups. Prekindergarten classes were attended by the experimental groups while control children remained at home during the year before kindergarten.

The immediate effects of prekindergarten were measured by the Stanford-Binet, the PPVT, and the Illinois Test of Psycholoinguistic Abilities (ITPA) at

the end of prekindergarten. For a longitudinal assessment, Metropolitan Readiness Tests were given at the end of kindergarten and Metropolitan Achievement Test at the end of first grade.

Results:

1. "The prekindergarten experience was beneficial for the disadvantaged as indicated by significant differences between disadvantaged experimental and control children on the Stanford-Binet, the PPVT, and the ITPA."
2. "The prekindergarten experience was of no benefit to the nondisadvantaged participants."
3. "Not all the prekindergarten programs were effective for disadvantaged children; some programs benefited disadvantaged children by increasing capacity to learn and language development while others did not."
4. "The prekindergarten experience was equally effective for boys and girls."
5. The most effective programs (Schenectady - reading readiness; Cortland - Bereiter and Engelmann language program) for disadvantaged prekindergarten children were those with the most specific and structured (cognitively oriented) activities.
6. On the Metropolitan Readiness Test, differences resulting from prekindergarten experience were maintained for the disadvantaged group as a whole.

Comments: "...this study has shown that prekindergarten programs, particularly those that are cognitively oriented and structured for specific goals, do benefit disadvantaged children."

III. Karnes, M. B., Hodgins, A. S., Teska, J. A. and Kirk S. A. The effects of five preschool interventions: Evaluations over two years. In Research and development program on preschool disadvantaged. Final Report. University of Illinois, Contract No. OE 6-10-235, Office of Education, 1969.

Introduction: This study was designed to evaluate the effects of five preschool interventions.

Method: The Ss were 75 disadvantaged four-year-old children from Champagne-Urbana in five class units of 15 each. Children attended daily lessons of 2¼ hours for between seven and eight months. Ss were stratified by race, sex, and I.Q. The five programs are as follows:

1. Traditional -- Promotes personal, social, motor, and general language development (uses incidental learning).
2. Community-Integrated -- Stressed socio-economic integration and followed similar routine to the Traditional program.
3. Montessori -- Presented a structured environment in the sense that the manner in which the child interacted with the materials was prescribed.
4. Ameliorative -- Highly structured in that all activities are carefully programmed to ameliorate specific deficits of the disadvantaged. The program is derived from a modification of Osgood's theoretical model which concerns itself with the analysis of psycholinguistic abilities from three dimensions: levels of organization, psycholinguistic processes, and channels of communication. (Karnes)
5. Direct-Verbal -- Presented intensive oral drill in verbal on logical patterns. (Bereiter and Engelmann)

During the kindergarten year, children in the Montessori, Traditional, Community-Integrated and Ameliorative were entered in a public kindergarten. (The Ameliorative group also received one hour of a supportive Ameliorative program in the afternoon.)

The Direct-Verbal group continued in their experimental program.

The assessment indices were: Stanford-Binet, ITPA, PPVT, Frostig Developmental Test, Metropolitan, and CAT.

Results (end of preschool year):

1. The Ameliorative and Direct-Verbal groups made a mean gain of 13 points on the Binet.
2. The other 3 groups made gains of 5 to 8 points on the Binet.
3. On the three ITPA subtests which showed the greatest deficit, the Ameliorative group removed the deficit from all three, the Direct-Verbal from two of the three (the Traditional group made similar gains), and the Community-Integrated and Montessori made no gains.
4. There were no differences on the PPVT.
5. The Ameliorative group scored significantly better than the other four groups on the Frostig.
6. On the Metropolitan, the Ameliorative and Direct-Verbal were significantly better on number readiness.

Results (end of kindergarten year):

1. Only children in the Direct-Verbal group made significant gains (6 points) on Binet I.Q. The other four groups basically maintained the gains made in the first year.
2. The Direct-Verbal group was the only group that demonstrated a significant increase in language scores during the second year.
3. On the Frostig, the Ameliorative group continued to make modest gains, the Traditional group made no gains, the Montessori and Community-Integrated groups made substantial gains, and the Direct-Verbal group closely approximated the scores of the Ameliorative group.
4. The Ameliorative group scored significantly higher than all others on the Metropolitan Readiness Test.

Results (end of first grade for Ameliorative, Direct-Verbal, and Traditional groups):

1. The Ameliorative and Direct-Verbal groups scored significantly higher than the Traditional group on the California Achievement Test.
2. The Ameliorative and Direct-Verbal groups were significantly higher than the Traditional group on the California Arithmetic Test.
3. There were no significant differences between groups on Binet I.Q.
4. There was no significant difference between the three groups on ITPA language scores.
5. There were no signficant differences between groups in visual perception.

IV. Miller, L. B. Experimental variation of Head Start curricula: A comparison of current approaches. Annual Report 1968-1969. University of Louisville Research Grant #CG8199, Office of Economic Opportunity.

Introduction: The purpose of the study was to conduct an experimental comparison of four curricula -- Montessori, Bereiter and Engelmann, DARCEE, and Traditional, with appropriate controls for teacher and population variables.

Method: Fourteen classes were conducted during the 1968-69 school year -- two Montessori classes and four classes in each of the other program styles. Four-year-olds in Head Start were pre- and posttested with nine instruments: (1) Stanford-Binet; (2) Preschool Inventory; (3) Quick "Culture Fair" Picture Vocabulary Test; (4) Wepman Auditory Discrimination Test; (5) Behavior Inventory, Cincinnati Autonomy Battery; (6) Curiosity Box; (7) Replacement Puzzle; (8) Dog and Bone Test; and (9) Embedded Figure Test. A non-preschool control group was also tested. Classes were monitored periodically throughout the year to assess treatment dimensions. All phases of the first year of this study are now complete.

Results: Data analysis is in process, but there are some tentative preliminary results to report.

1. Posttest scores on the Stanford-Binet revealed significant differences between pairs of means; namely, both Bereiter-Engelmann and DARCEE programs are higher than the controls.
2. Posttest scores on the Preschool Inventory showed that the DARCEE and Bereiter-Engelmann programs are both significantly greater than controls, and the DARCEE program is significantly greater than the Traditional program.

Comments: A report with up-to-date results and complete data analysis should be available soon.

V. O'Piela, J. Pilot study of five methods of presenting the summer Head Start program. Detroit Public Schools, Detroit, Michigan, 1968.

Introduction: The purposes of this research were to establish evaluative base line data about the perceptual-motor skills of children in the program and to examine the merits of five methods of presenting the Head Start curricular program.

Method: The Head Start eligible children were assigned to seven groups:

1. Detroit Head Start with Experience Record (Experimental). "This curricular approach embodied the guiding principles of the Detroit Head Start Program -- perceptual and conceptual development through multi-sensory experiences. An experimental handbook, Young Children in Schools, was provided for teachers to use in making a selection of experiences fostering the building of basic skills that are necessary for successful school experience. A Head Start Personal Experience Record (Digetek Form) was derived to aid in projecting a profile of the kinds and depth of experiences children were having in auditory and visual discrimination, concrete and abstract quantitative thinking, fine and large motor control, and tactile learning."
2. Detroit Head Start Control Centers. "The curricular program in the control centers was the basic perceptual-conceptual multi-sensory program. Teachers were provided with the handbook, Young Children in School, but were given no specific procedures to follow as to its use... The Digitek form, Children's Experience Record was not used in the control centers."
3. Frostig Experimental Center.
4. Frostig Control Center.
5. Doman Delacato Experimental Center.
6. Doman Delacato Control Center.
7. Bereiter Experimental Center.

The Peabody Picture Vocabulary Test and the Brenner Developmental Gestalt Test of School Readiness were administered pre and post to the preschool programs. "Children in the Frostig Experimental and Control Centers were also pre and posttested with Marianne Frostig Developmental Test of Visual Perception. Children in the Doman Delacato Experimental and Control Centers were pre and posttested for lateral and visual dominance in three areas, handedness, footedness, and eyedness."

Results: "Raw score gains on tests administered to Head Start pupils were computed for comparison of gains among Head Start Centers employing modifications in basic Head Start curricular program."

1. The total Head Start population showed improvement at the .01 level of significance on the variables evaluated: vocabulary, total readiness for school, achievement-ability assessment, and social-emotional behavior.
2. Boys in the 4-4.11 age range had lower basal scores on all variables than girls of the same age.
3. "The Doman Delacato Experimental and Bereiter Experimental groups showed superiority over the Frostig Experimental and Control groups on mean gains in vocabulary raw score."
4. "There is no evidence in the data collected and reported in this study of the overwhelming superiority of only one of the curricular methods tried and observed in which the teaching emphasis is different than prescribed by the basic Detroit Head Start and kindergarten curricular multi-sensory program."

VI. Weikart, D. P. Comparative study of three preschool curricula. Paper presented at the biennial meeting of the Society for Research in Child Development, Santa Monica, California, March, 1969.

Introduction: The purpose of this investigation was to pull together in a controlled study several theoretically divergent curricula to determine their relative impact upon the cognitive, social-emotional, and academic growth of the disadvantaged child.

Method: Three curricula thought to have remedial potential for the disadvantaged were compared:

1. a unit-based curriculum emphasizing the social-emotional development goals of the traditional nursery school.
2. A cognitively oriented curriculum developed over the last five years by the Ypsilanti Perry Preschool Project. (The curriculum is based on methods of "verbal bombardment", socio-dramatic plays, and certain principles derived from Piaget's theory of intellectual development.)
3. A language training curriculum emphasizing learning of academic skills developed by Bereiter and Engelmann.

The children for the curriculum study were drawn from the total available three- and four-year-old population of functionally retarded disadvantaged children in the Ypsilanti school district. The contrast group was one of the five no-treatment control groups employed in the five year Perry Preschool Project. All treatment groups were balanced by measured intelligence, sex, and race. Two teachers were assigned to each curriculum model after they had an opportunity to express a preference. They taught for half a day and conducted home teaching sessions for each of their children for 90 minutes every other week.

Essential to the demonstration aspect of the project was that all three programs had clearly defined week-by-week goals. The curriculum implementation followed a carefully planned daily program

designed by the teachers themselves to achieve the goals of each curriculum.

Results: The data available is based on intelligence test scores, social-emotional and general development ratings by teachers, and systematic classroom observations.

1. The three curricula groups made equal gains on the Stanford-Binet. There were no significant differences in intelligence test scores (Stanford-Binet, Leiter International Performance Scale, PPVT) for the children in the three treatment groups.
2. The teachers in each program were asked to rate all children in their program on two scales: Pupil Behavior Inventory and the Ypsilanti Rating Scale. Again, when these data were analyzed according to curricula, there were no significant differences.
3. The classroom observations using the OSCAR method revealed no statistically significant differences among the three programs.

DEVELOPING PRESCHOOL PROGRAMS

DEVELOPING PRESCHOOL PROGRAMS

Included in this section are preschool programs which did not meet the criteria of a written curriculum and empirical results, but were developing these materials and looked like potentially good programs.

Aaron, R. L. Preschool Stimulation Project . . . 105

Appalachian Educational Lab, Early Childhood Education Program 106

Nurseries in Cross-Cultural Education, San Francisco 113

Preschool Curriculum, Oakland, California 117

Southwest Educational Development Laboratory, Early Childhood Education Learning System 119

Stern, C. Preschool Language Project 121

I. Aaron, R. L. "Early Childhood Education". Paper presented at International Reading Association Conference. Boston, Mass. April, 1968.

Orientation: The Aaron-Mason preschool stimulation project is based on behavior analysis.

Population: 68 disadvantaged 3, 4, and 5 year old preschoolers and 180 advantaged 3, 4, and 5 year old preschoolers.

Curriculum: Reading, writing, oral language, mathematics, science, social studies, art and music.

Method: The children are grouped homogeneously to narrow the range in ability. There was 1 adult for 5 children.

Evaluation was imbedded in the curriculum. The teachers were committed to producing behavior in the child by use of outlined, or by synthesis of own and outlined procedures. There was heavy emphasis on child experiencing many activities with words, especially compare and contrast, in game form. The children will be kept in intact groups from age three through the sixth grade.

Assessment Indices: Jastak Wide Range Achievement Test.

Results:

1. The 5 year old disadvantaged children after 5 months of instruction had a mean reading gain of 10 months on the Jastak Wide Range Achievement Test.
2. 4 and 5 year old advantaged children after 5 months of instruction had mean reading gains of 7 months and 13 months respectively on the Jastak Wide Range Achievement Test.

II. Appalachian Educational Lab, Early Childhood Education Program.

Orientation: The emphasis in this curriculum is three-fold: (1) the child's growing feel for, command of, and skill with language; (2) the development of the child's cognitive skills and knowledge; and, (3) the social and emotional growth of the child as he develops a self concept and interacts in various ways with those around him. In selecting a curriculum model consideration was given to the model proposed by Gilford in his Structure of the Intellect and to Taba's model, keeping in mind the particular needs of Applachian preschool children.

The aim is to provide an adequate program under the constraints imposed by a rural area and a shortage of professionally trained nursery and kindergarten teachers.

At the estimated cost of $200.00 per pupil per year the thrust was to affect the behavior of these children by providing them with experiences which would counteract negative environmental influences and which would increase their potential to profit from later educational opportunities. Since Appalachia has a sparse population which is widely scattered among hills and hollows and since publicly supported kindergartens are rarely available, an alternative mode for providing instruction to these children was sought which would enable the children to have access to a program close to their homes.

In order to design the curriculum for the children that it would serve, the first phase of this five year empirical program was devoted to an in-depth assessment of the economic, social and educational conditions and values in the target area as well as the present intellectual functioning of the children living there as compared with urban middle-class children. (This was conducted by Hooper and Marshall at the University of West Virginia.) This information guided the designing of the curriculum and the implementation of the program.

Population: The program is designed for three, four, and five year olds (boys and girls) living in rural (either farm or non-farm) Appalachia. No attempt was made to define economic level.

A representative area of Appalachia was chosen and a sample of children selected in order to launch this empirical program; this included Fayette, Mercer, Raleigh, and Summers Counties in West Virginia.

Curriculum: Based on the investigators' findings in assessing the intellectual functioning of the children in the target area, a basic curriculum was formulated. An overall outline of the curriculum is as follows:

A. Orienting and Attending Skills
    1. Competition
    2. Delay and Character of Rewards
    3. Direction Following
    4. Impulse Control
    5. Persistence
    6. Social Skills
    7. Task Completion
B. Motor Activity
    1. Gross Motor Activity
    2. Fine Motor Skills
    3. Creative Activities
C. Language
    1. Construction
        a. Producing Phonemes
        b. Sentence Production
    2. Descriptive
        a. Describing Objects and Events
        b. Dramatic Expression
D. Cognition
    1. Sensory Discrimination
        a. Auditory Discrimination
        b. Perceptual Discrimination
        c. Tactile Discrimination

2. Higher Order Cognitive Acts
   a. Memory Tasks
   b. Quantitative Skills
   c. Seriation Tasks
   d. Classification
   e. Conservation
   f. Problem Solving

Method: The objectives of the curriculum are stated in terms of behavioral objectives. Natural groupings of objectives are set up for units of work covering various periods of time by a "Curriculum Materials Team." Initially this team was guided by the information about Appalachian preschoolers from the West Virginia University research assessment, which constituted an initial phase of this study. This helped to determine the level of concepts to be presented and the emphases on particular skills. However, after a short period of time it was possible to incorporate actual observations of children into the planning process. Themes were decided upon as vehicles for presenting the concepts to be taught and specific lessons have emerged.

A series of five general learning principles has been incorporated throughout the program:

1. Basal Behavior. Formal and informal observations and testing procedures are employed to diagnose a child's competence in skills that are prerequisites to a given behavior. This is to insure that a child already has command of the necessary antecedent behaviors.
2. Successive Approximations. In this process a skill is broken dwon into small sequential steps. This insures that there will be no knowledge gaps and a child may progress with a minimum of errors, so that he is more apt to encounter success.
3. Immediate Feedback. It is an assumption of the program that a child's motivation will be enhanced if he receives immediate and continual feedback as to rightness or wrongness of his responses. He is less

likely to repeat errors or to be frustrated by errors which he cannot find. This feedback may come in a variety of forms depending upon the content of the learning experience. The program capitalizes on natural feedback wherever possible (for example, in working with manipulative devices the task itself tells the child whether he is right or wrong). Feedback may also come in the form of reinforcement, attention and praise or simply frequent comment on the accuracy of a child's work.

4. Active Involvement. This involves structuring material so that the child performs a task himself rather than seeing a demonstration. This requires that the child attempt to deal with the problem in terms of his own abilities and understandings and reinforces his paying attention if he responds correctly. It also increases the likelihood that he will transfer learned information or problem solving strategies to new problem situations.
5. Progression at One's Own Rate. This provides for the child being able to progress through successively more difficult tasks at his own rate of speed, not being forced to move ahead of his own understanding.

In order to understand the flow of intervention and feedback from the child and back into the program the design of the program's delivery system is germane.

Due to the physical constraints of Appalachia, the strategy selected was a home-oriented program. There are three components of the program, each carefully correlated with the others:

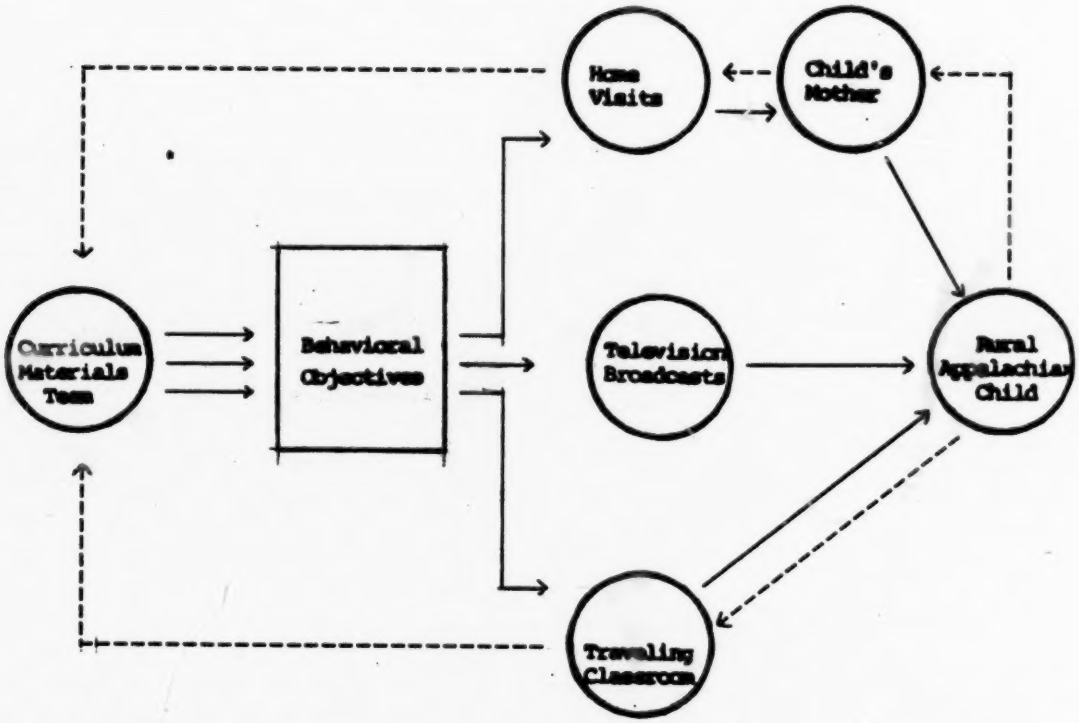
(1) Television broadcasts on commercial channels, receivable on all home sets. This involves broadcasts which are one-half hour long, five days a week, for a total of 150 broadcasts per year. The programs are based on specific behavioral objectives applicable to the target population and are designed for the group's interest and comprehension level.

(2) Home visits made by trained paraprofessionals drawn from the area. Each child's home is visited once a week for approximately one-half-hour. The home visitor provides learning activities and materials, counsels parents, and gets reactions to the program.

(3) A mobile classroom which provides a setting for group activities and the social development of children. This unit is self-propelled, staffed by a professional teacher with an aide, and makes weekly visits of approximalely one and one-half hours each at locations serving 10-15 children each. Specific lessons are planned within the program curriculum and correlated with the lessons of the other two components.

The Curriculum Materials Team is responsible for producing all curriculum materials--television broadcasts, children's worksheets, parents' guides, and suggestions for activities to be used in the traveling classroom. While each person has responsibility to one segment of the job to be done, the person preparing a week's materials for the home visitors to use always knows what will be appearing on the television broadcasts that same week. For example, a poem used on television may be printed and sent out for home use or a story on the same subject may be sent out instead.

The following is a schematic presentation of the flow of intervention and feedback from the Curriculum Materials Team to the child and return.



Assessment Indices: Under the direction of Dr. James Ranson, director of research for Appalachia Educational Laboratory, Inc., a careful procedure involving standardized and curriculum specific tests has been employed. At this time an interim report on the operation of the first year has not yet been completed, but it should be ready in the near future. The projected criterion to measure the success of the program will be 90% performance of 250 behavioral objectives in language, cognition, motor skills and orienting and attending skills upon the completion of the three-year program by all six-year-old children with I.Q.'s of 90 or above.

Comments: The strong point here is that the program is designed to be taken to the child. It eliminates the problems of transportation and distance in rural areas. It does not require large numbers of certified preschool teachers. It does not require a massive building program. It takes advantage of the fact that most children have access to a television set.

This program also allows one group of children to participate in the full three year program, beginning as three-year-olds.

References:

*Hooper, Frank H. and Marshall, William H. The initial phase of a preschool curriculum development project. Final Report. Division of Family Resources, College of Human Resources and Education, West Virginia University, Morgantown, West Virginia, August, 1968.

Alford, Roy W. Jr. Mobile media proves answer in Appalachia. Educational Media, 1, 1969.

Development of the early childhood education program. Basic Plan. Appalachia Educational Laboratory, Inc., September, 1969.

III. Nurseries in Cross-Cultural Education (San Francisco).

Orientation: "The general aim of the study is to assess the effects of a cross-cultural nursery school as an instrument for promoting mental health in a community that is being subjected to the stresses of redevelopment." The nursery school was chosen as a means for achieving this rather broad aim because (1) "the early years are of utmost significance in developing integrated personalities" and (2) "diverse and conflicting interests may be harmonized when people are brought together to work for the welfare of their children."

The continuous involvement of the parents was a critical element in the operation of the nursery school, and the school was specifically designed to include parents and children of three cultural groups -- a low-income Negro community, a low-cost public housing community, and a middle income community reflecting a wide range of occupations and ethnic affiliations. It was hoped that the interaction of parents and children in the nursery school setting would result in:

"a. Behavioral changes in the children of factors related to mental health. These factors will include basic trust, autonomy, initiative, cognitive development, and social competence.

b. Behavioral changes in the families of the nursery school children of factors related to mental health. These factors will include social competence, adaptability, and intergroup acceptance.

c. Behavioral changes in the families' utilization of community resources and participation in community activities, particularly as these relate to cross-cultural involvement."

The study was designed as a five-year project extending from 1965 to 1970. The first year was devoted to development, the following three years to application, and the last year involves summarizing, evaluating, and reporting.

Population: The children of the sample came from a community in San Francisco where there had been an intensification of the problems typically associated with the inner city. Specifically, a new housing development was interjected into a trap ghetto neighborhood, with the "older" ghetto residents being forced into the communities surrounding the new housing development. The area was comprised of middle-income groups -- Negro, Caucasian, and Oriental, in-migrants from many areas including rural Southern Negroes, and a Japanese group.

Specifically, the sample consisted of approximately 60 children between the ages of 2.3 and 2.6 years at the time of nursery school entrance. The children came from the middle-income group, the low-cost public housing group, and the trap ghetto neighborhood. A sampling of three ethnic groups was included by involving the trap ghetto neighborhood.

Curriculum: The overall frame of reference for the nursery school program delineated four main emphases. First, the nursery school program was organized around play, since play was regarded as the child's spontaneous way of learning and of developing his personality. The teachers guided the child in selecting materials and experiences to give him a sense of "mastery over the realities of his life." Second, individualization was achieved in two ways. Identification through involvement in a dyad relationship was considered an important and individual learning experience, and learning experiences and materials were chosen separately and sequenced for each child on the basis of teacher diagnosis. Third, emphasis was placed upon a trusting and trustful adult response to the children, with special attention to developing the child's trust in adults and older children in their roles as authority figures. Last, the learning environment was one in which teachers focused on process to achieve the goals of the program by: "selecting materials in sequences, interpreting symbols of the culture, clarifying feelings, arbitrating conflicting demands, encouraging reasonable risk-taking, presenting the child's culture to him clearly, and providing 'stretching' materials."

The parent education program was stressed as much as the nursery school program. Experiencing and analyzing alternative methods of problem solving and discussion of daily family concerns (such as budgeting, children's language, siblings, etc.) were main features of the program. At the time of conception of the project, four procedures were suggested for working with the parents: (1) small and flexible groups (3-6 persons) to work with members of the project's staff on concerns of that particular group; (2) parent participation and observation in the nursery school program, with participation "structured developmentally so that more complex tasks are expected as parents develop self-confidence"; (3) parent-teacher conferences; and, (4) voluntary counseling relationships.

Method: Three groups of 20 children attended nursery school for five half-days a week. Each group of 20 had a head teacher and an assistant teacher. With the addition of parent and graduate student participation, there were at least five adults available for each group of children. Since the nursery school program was organized around play, the child was the locus of control. The staff then planned, from and within the children's play, an evolving program that took into account readiness, interests, anxieties, and abilities. Classes for the group as a whole were non-existent until the children seemed ready to partake in and benefit from group instruction.

The last two months of the first year were devoted to teacher training in sensitivity skills, observational techniques, interviewing and counseling, record-keeping, community study, family life education, and some teaching strategy.

Although the program has stated objectives, the objectives are presented in global terms. It may be that during 1970, the final year of the program, those activities in which the children engaged and their sequence will be carefully specified.

Assessment Indices: Community, child, and family data were collected during the project. Data for the study of the community consisted of descriptive historical background material, a descriptive account of the

contemporary setting, and a detailed account of the sample families within the context of the contemporary community.

Child data was obtained through use of both scaled and/or standardized tests and process analysis (assessment of changes). Anecdotal and observational records were kept by each teacher on ten children and their families. Four tests used to evaluate the children's progress were: The San Francisco Preschool Social Competency Scale, the Peabody Picture Vocabulary Scale, Templin's or McCarthy's developmental scheme for assessing language development, and language samples yielding information on concept development.

Family data will include the intake interview, a health examination, a social competence rating, parent adaptability data, and information on intergroup acceptance.

Results: Data analysis (to be accomplished in 1970) will include pre-post test analyses and process analyses. "Apart from any statistical analysis conducted, detailed descriptions of child-play sequences, parent-child interactions, and parent-parent interactions will be pulled together as an aid to those interested in establishing similar programs."

References:

Lane, M. B. Educational and mental health consequences of a nursery school program in a cross-cultural setting. Proposal to the National Institute of Mental Health, U. S. Department of Health, Education, and Welfare, 1965.

Nurseries in Cross-Cultural Education. School of Education, San Francisco State College, San Francisco, California. (Explanatory pamphlet)

IV. "Preschool Curriculum" Oakland Interagency Project, Oakland, California, 1965.

Orientation: "The purpose of the program is to provide experiences within an enriched environment to prepare disadvantaged preschool youth for school, to increase their potential for initial success in school, and to provide them opportunities to realize their individual potentials." (p. 1)

Population: Preschool disadvantaged.

Curriculum: Development of sensory modalities, language growth and concept development.

Method: Teaching objectives are indicated and teachers use their own judgment and creativity in implementing the suggested lessons in the program. The daily schedule begins with 40 minutes of self-selected development of sensory modalities, one-to-one relationships, language growth and individual differences. The materials were selected by the program planners with a developmental sequence in mind. The language development component lasts 20 minutes and includes teaching objectives under each of the following categories:

1. Speech production
2. Language awareness
3. Language patterns
4. Vocabulary enrichment
5. Literature
6. Visual perception
7. Auditory discrimination
8. Cognitive development

Enrichment experiences, such as audio-visual material, field trips and resource people are used in conjunction with or follow up of language development. The remainder of the schedule includes a snack, story group, physical development, and creative arts.

Assessment Indices: Check list of skills are being kept to show progress and sequence.

Results: Not available.

Delivery: Parents are used as aids. Paper indicates that there is a separate document or section of a document labeled "Parent Aide Program."

V. Southwestern Educational Development Laboratory, Early Childhood Education Learning System.

Orientation: Using behavioral objectives in sequenced lessons, the program draws on the work of Guilford and Gerlach and Sullivan's Constructing Statements of Outcomes. The program evolved from an analysis of the needs of the specific target population. The learning system is built on four structural components:

1. "Concept-Affect Formation -- The specific concept to be acquired with major attention directed toward the child's attitudes and feelings concerning his mastery of these concepts."
2. "Sensory-Perceptual Skills -- Development of the skills necessary for processing information through the various sensory channels available to the child."
3. "Language Skills -- Development of linguistic competence in both English and Spanish." (Nedler)

Population: The target population is disadvantaged three, four and five year old children. The learning system is specifically being pilot tested with urban black children, and rural non-farm black children.

Curriculum:

1. Visual training
2. Auditory training
3. Motor training -- gross and fine
   English language instruction
4. Expanded language instruction

Method: The teaching staff consisted of usually eight children to one adult, and instructional activities provided time for small group, full group and individual experiences.

For each training area (curriculum) skill outlines representing three-year objectives have been specified. The curriculum consists of sequenced series of lessons beginning with the lowest order of skill competencies and continuing systematically to higher level tasks. Each activity is designed around a behavioral objective that relates to a higher order skill and describes what the child should be able to do as a result

of the particular learning experiences in behavioral terms. The instructional activities have been organized into weekly units determining the conceptual content and classroom performance tests have been developed for each instructional unit. Behavior modification is used in that the child is positively reinforced for any desired behavior.

The teachers are an important element in this program. "Teachers should be able to identify and state clearly the desired terminal behavior. The ability to perform a component analysis of the terminal behavior as well as select the appropriate behavior entry point for the child is essential. Finally, the teacher must develop the instructional tasks designed to enable the child to achieve the objective." (Nedler)

Main Results: (See Appendix for abstracts of studies)

1. The gain of migrant children who participated in the Early Childhood Education Learning System was significantly higher than the gain of the non-migrant children in day care centers (Study I).
2. The urban Mexican-American children who participated in the Early Childhood Education Learning System achieved a statistically significant greater gain on each test than the children whose parents attended a special parent involvement program and children in a day care center (Study II).

References:

Demonstration and training project in early childhood education for migrant children. Annual Evaluation Report 1968-69. Southwestern Educational Development Laboratory, U. S. Office of Economic Opportunity.

Early childhood education learning system. Final Evaluation Report 1968-69. Southwestern Educational Development Laboratory.

Nedler, S. An early childhood education model - a bilingual approach. Southwest Educational Development Laboratory (mimeo).

VI. Stern, C. A preschool language project. A report of the first year's work. Department of Health, Education, and Welfare, 1966.

Orientation: This was a formal, structured language program to remediate language deficiency.

Population: The target population is children from "impoverished environments."

Curriculum:

1. Science (natural phenomena)
2. Social Studies (people and places)
3. Mathematics (quantities)
4. Logical processes (problem-solving skills)
5. Ordering or seriation
6. Language skills

Method: No specific instructional methodology was available but the results of a series of exploratory investigations which will be used in the formulation of the instructional methodology are reported. The programs, when developed, will consist of high intensity learning situations in which the child is given individual instruction, required to respond to every question, and provided with immediate feedback concerning the correctness of his response. The programs will be presented through a variety of different media or "interfaces."

Assessment Indices:

1. PPVT
2. Goodenough Harris Draw-a-Man Test
3. Wepman Auditory Discrimination Test
4. Frostig Developmental Test of Visual Perception
5. Verbal Output Inventory
6. Flander's system for analyzing teacher's speech
7. Winterhaven Test

Five new assessment instruments were developed:

1. Vocabulary Test
2. Children's Auditory Discrimination Inventory (CADI)

3. Echoic Response Inventory for Children (ERIC)
4. Visual Perception Inventory (VPI)
5. Color Test

Results:

1. Children from a daycare center showed equivalent gains on two- and three-dimensional training materials.
2. Structured repetitions of sentences in a pattern-practice fashion produced significantly more learning and transfer than material presented in story form.
3. No significant differences in "good sentence production" were found between children who spoke out loud during a learning program and those who listened to the correct sentences.
4. Amount of learning was not related to either random or ordered sequences in the acquisition of five concepts (clothing, transportation, animals, furniture, and parts of the body).

CURRICULUM COMPONENTS AND IDEAS

CURRICULUM COMPONENTS AND IDEAS

Outlined in this section are studies which have developed component content areas (e.g., teaching formal operations) or utilized novel approaches to preschool programs (e.g., teacher developed language curriculum).

Alexanian, S. Teacher Developed Preschool Language Training Program 126

Blank, M. Individual Teaching for Abstract Thinking. 127

Blank, M. A Methodology for Fostering Abstract Thinking. 130

Children's Television Workshop 133

Coffman, A., & Dunlap, J. M. Personalized Programming of Prekindergarten Children 136

Deutsch, M. The Deutsch Model 139

Early Childhood Education Curriculum Guide, Oak Ridge, Tennessee. 143

Engel, R. C. Language Development Experiences for Young Children. 144

Engelmann, S. Teaching Formal Operations. 146

Fowler, W. Designing Learning Programs for Disadvantaged Children. 148

Hart, B. M., & Risley, T. R. Establishing Use of Descriptive Adjectives 149

Ireland, V. M., & Cox, F. M. Preschool Programs, Atlanta Public Schools. 151

Locatis, F., & Smith, F. A. Instructional Concept Program 153

Long, E. R., Jr. Programmed Instruction 155

Parker, R. K. Learning in Children: Classification. 158

Stendler, C. A. Piaget-Derived Model for the Preschool Child 160

Universal Education Corporation, Discovery Program 161

I. Alexanian, S. "Head Start Evaluation and Research Center Boston University. Report D-I, Language Project: The Effects of Teacher Developed Pre-School Language Training Program on First Grade Reading Achievement." Boston University, 1967.

Orientation: "The purpose of the study was to determine the effects of a teacher developed language readiness curriculum on the grade one reading achievement of selected groups of children enrolled in Headstart programs."

Population: The experimental group consisted of three Headstart classes (N=35), while the control group consisted of two Headstart classes (N=25). Males and females were equally represented in both experimental and control groups.

Curriculum: The curriculum was language oriented. "It was the hypothesis of this project that a community oriented readiness curriculum could be developed utilizing: (1) community vocabulary and resources; (2) knowledge of public school materials, vocabulary and expectation; and, (3) skills which have a demonstrable effect on early reading skills."

Method: Not specified.

Assessment Indices: Murphy-Durrell Reading Readiness Analysis.

Results: Not specified.

Comments: One of the strengths of this program is the method of asking teachers to modify a curriculum to incorporate community characteristics, strengths and deficits, therefore leaving the impact and implementation on the shoulders of the teacher.

II. Blank, M. Cognitive gains in 'deprived' children through individual teaching for abstract thinking. Department of Psychiatry, Albert Einstein College of Medicine, Bronx, New York, 1967.

Orientation: This was a pilot study based on an inference from the developmental theories outlined by Piaget, Vygotsky, and Yudovitch. It was an empirical follow-up on the suggestion that although the so-called "culturally deprived" children have many learning deficits, their most disabling handicap is their difficulty in using language abstractly. The specific hypothesis of this study was: if an education program were limited to the development of abstract language, then not only language, but many other aspects of thinking would be facilitated. Several further assumptions were the basis for the design of the program:

1. Children without a firm language base need to be consistently guided in using language to direct their thinking. This assumption required that the most effective teaching be based on individual tutoring.
2. Children have short attention spans and therefore need relatively short learning sessions and relatively brief but frequent reinforcement of new skills.
3. Children will have difficulty at first using more complex modes of thinking and they will develop means of avoiding the tasks. In order to prevent the development of firm patterns of resistance, children must not be permitted to leave a task unfinished, even if this task involves restructuring and simplifying the task.
4. Language acquisition is characterized by marked individual differences; therefore the teaching program must fit the individual needs of each child.

Population: This empirical program was based on 12 three- to four-year-old children selected from a nursery school in a socio-economically deprived area

in New York City. Of the twelve, four children received the experimental program, three received contact with the same teacher but no tutoring, and six children were used as controls, receiving the traditional nursery school program.

Curriculum: The more abstract functions of language were emphasized by using concepts which required the child to:

1. abstract some essential but not immediately evident feature from an object.
2. recognize the relatedness among a series of events or impose some organization onto a series of objects.

For example, rather than labeling objects, emphasis is placed on a word such as "top." Because such a word can refer to the "highest point" of many things which are physically very different, thus, a common but not immediately obvious characteristic becomes understood. It is believed that this kind of learning reflects a much more abstract structuring of reality.

The following concepts represent the type of material emphasized in the study program:

1. Number -- ranging from spatial to temporal presentation
2. Direction
3. Speed
4. Size
5. Temporal sequences (time)
6. Facial expressions and the emotions they convey
7. Parts of the body and their function

Method: Each child was individually tutored by a trained nursery school teacher, the locus of control being with the teacher. The program was in effect for three months, five days a week, for 15-20 minutes each day. Since the child received constant guidance, it was possible to use common inexpensive objects (e.g., paper, pens, blocks, toy cars, books) as points of departure for the discussion of increasingly abstract situations which did not exist at the moment in front of the child.

A variety of teaching methods was employed, all of which shared certain specific features. The teacher never used gestures, so that the language had to be understood in order for the task to be completed correctly. The child always had to produce an independent response; he was never allowed to act passively or to simply imitate the teacher's actions. Within the framework outlined by the teacher, the child had to extend the situation beyond what existed in front of him (e.g., past-future, alternative courses of action, predicting the outcome in action, giving explanations of events, etc.). The discussions between the child and teacher were designed to encompass a sequence of interrelated events so that the child would both have to sustain this attention and be able to see a particular event as being part of a certain framework.

Assessment Indices:

1. Stanford-Binet
2. Leiter Scale

Results: Each of the 4 children receiving the experimental program made significantly higher gains in I.Q. (an average of 18 points) than the children in any of the other groups. Those children who started out with the lowest scores improved most.

Comments: The investigator feels that the program would have to be maintained for a considerable period of time (e.g., 2 or 3 years) in order for the gains to be independently maintained by the child. However, considering the short amount of time (60-90 minutes per week for 3 months), the low cost of materials, and the rapid gains in performance, this program seems worthwhile to pursue.

III. Blank, M. A methodology for fostering abstract thinking in deprived children. Albert Einstein Department of Medicine, Bronx, New York, 1968.

Orientation: This empirical pilot program is focused on fostering the development of abstract thinking in deprived children. Based on past research carried out by the author, she has concluded that deprived children do not lack perceptual experience or perceptual skills, but rather they lack the means for making these observations meaningful. Therefore, one of the major goals of this program is the development of cognitively directed perception, which focused on ways in which to help the child organize his world. Abstract thinking is facilitated by coding in language. However, this program is based on the premise that the coding process itself requires a high level of abstraction. That is, if the child is to understand increasingly complex language forms, he must be cognizant of the principles underlying these various formulations. Thus, the child will add "ed" correctly to the endings of verbs only when he has some awareness that this form differentiates the past from the present. Thus, the second major aim of this program is to facilitate the child's coding process. The third aim of the program is to facilitate problem solving skills.

Population: A pilot study has been conducted on twelve, three- and four-year-old disadvantaged children from New York City.

Curriculum:

A. Development of cognitively directed perception
   1. Selective attention
   2. Reduction of visual dominance
   3. Reduction of egocentric perspective
   4. Recognition of the significant characteristics of objects and events
   5. Recognition of tangential from the germane
   6. Rationale for observations and behavior
   7. Awareness of learning -- its components and complexity

B. The coding process
   1. Development of verbal concepts
      a. Physical properties, such as number, speed, direction, temperature, emotions.
      b. Multiple concepts
      c. Temporal concepts
      d. Linkage concepts
      e. Definition through function
   2. Categories of exclusion
   3. Relation of a word to its referent
   4. Relevant inner verbalization
   5. Development of a coding or translation process
   6. Awareness of possessing language

C. Problem solving abilities
   1. Development of memory
   2. Models for cause and effect reasoning
   3. Imagery of future events
   4. Validation of verbal statements
   5. Recognition of the incorrect
   6. Flexibility in thinking
   7. Selection of alternatives
   8. Development of sequential ordering
   9. Development of problem solving strategy
   10. Deductive and inductive reasoning
   11. Ability to employ sustained sequential thinking
   12. Ability to sustain independent work

Method: This program is carried out on a one-to-one basis as part of the school day. It was done daily, in short 15-20 minute sessions, because of the short attention spans of young children and the effectiveness of brief but frequent practice of new skills. The teacher structures each session and questioning, as in Socratic dialogue, is the overall technique employed. There are definite guidelines to be used in this questioning technique. The program appears to have activities sequenced in order of difficulty.

Results: The preliminary results of this program are promising. Even after only one month (four to five hours of tutoring), striking gains were apparent in

verbalization, control of impulsivity, feelings of mastery, and I.Q. However, at the time of our last information on this program, the investigator felt that there was a dearth of experimental work in this area and that even if the program did show itself to be useful for large numbers of children, there were many basic issues still to be resolved. Such questions involve:

1. the basic age at which such a program should be initiated.
2. the length of time such a program must be kept up for the gains to be maintained.
3. The training of teachers.

IV. Children's Television Workshop. "Sesame Street"

Orientation: During the summer of 1968 the workshop sponsored five three-day seminars over the following topics: (1) Social, Moral and Affective Development, (2) Language and Reading, (3) Mathematical and Numerical Skills, (4) Reasoning and Problem Solving, and (5) Perception. Each of these seminars was attended by developmental psychologists and educators actively involved in the topic area, television producers, animators, writers of children's books, composers, and preschool teachers. The basic objectives of the program evolved from this series of meetings. They were further refined through testing of children from the target population and reviewing normative data available from other researchers.

Population: The show is designed for preschool children. Elements of the program, however, are designed to appeal to parents and older siblings to encourage their watching the program with the young child. The inner-city child from a poverty neighborhood is of special interest to the workshop and most of the program elements are pilot tested with children from these areas.

Curriculum: An outline of the Workshop's instructional goals in presented below. Within each of these major goal areas, several levels of instruction are offered. Each goal is defined in terms of behavioral objectives.

1. Symbolic Representation
    a. Letters
    b. Numbers
    c. Geometric forms
2. Cognitive Processes
    a. Perceptual discrimination
    b. Relational concepts
    c. Ordering
    d. Reasoning and problem solving
3. Physical Environment
4. Social Environment
    a. Social units
    b. Social interaction

Method: "Sesame Street" is a daily, hour-long television program which will run for six months during its initial experimental season. The producers, extrapolating from Nielson survey data, have estimated that by mid-season the daily audience had grown to over six million preschool children. "The program is considered the first major national effort to harness the most effective of contemporary television techniques to the task of preschool education." (Stevens, 1970)

Two research groups, formative and summative, are associated with the Workshop. The formative research department is a part of the Workshop staff. The efforts of this group, working in close association with the show's producers, are aimed at betterment of the program. During the prebroadcast season the efforts of the formative group centered around the evaluation of existing television programs and techniques. During the broadcast season the emphasis changed to an achievement-testing program during the actual course of the broadcast season, allowing maximum feedback to the production staff. Two hundred day-care children in three geographical areas were tested prior to the premier of "Sesame Street." Half of the children in each classroom became viewers of the program and the other half, nonviewers. Subsamples of these groups were retested after three, six, twelve, and twenty-four weeks of programming.

The summative evaluation of "Sesame Street" is being conducted by an independent group of researchers at Education Testing Service. This group is involved in a national evaluation of the effectiveness of the television experiment. Some of the variables being considered in this evaluation: age, socio-economic background, viewing condition (home, school or ad hoc viewing group), sex, geographic location, and amount of viewing.

Assessment Indices: The PPVT was administered to all subjects to provide descriptive data on the population sampled. In addition, a battery of measures expressly designed to reflect the selected instructional goals of the Workshop were constructed by ETS. The tests included in this battery are as follows:

1. Body Parts
2. Letters
3. Forms

4. Numbers
5. Sorting
6. Relational Concepts
7. Classification
8. Puzzles
9. Embedded Figures
10. What came first?

Results: Only interim results are presently available from the formative research investigation. The results at the various testing times are reported in terms of percentage of subjects passing individual items in viewing and non-viewing groups. Consistent with the "formative" intent, interpretations of gain scores are utilized in making recommendations to the production staff. Accordingly, no tests of significance are currently reported.

A report on the summative evaluation should be available to the Workshop by late August of 1970. A more comprehensive report over the entire project should be available by the end of 1970.

References:

Ball, S. & Bogatz, Gerry A. Evaluating "Sesame Street." Educational Television. May, 1970, pp. 24-27.

Cooney, Joan Ganz. Television for Preschool Children: A Proposal. Children's T.V. Workshop. February, 1968.

Palmer, E. L. Can television really teach? American Education. August-September, 1969.

Statement of Instructional Goals for Children's Television Workshop. CTW interdepartmental memorandum (mimeograph). December 31, 1968.

Stevens, W. K. Tests indicate T.V. program improves children's skills. The New York Times. January 28, 1970.

V. Coffman, A. and Dunlap, J. M. The effects of assessment and personalized programming on subsequent intellectual development of prekindergarten children. Final Report of Phase II. Project No. 6-1328, Department of Health, Education, and Welfare, 1968.

Orientation: Piaget-oriented personalized program to foster the development of logical thinking and its effects on long-range school success.

Population: Ss were four-year-olds at the commencement of the study and represented all religious, ethnic, socio-economic, and ability characteristics of University City, Missouri.

Curriculum: There were five specific developmental areas: (1) motor, (2) auditory, (3) visual, (4) language, and (5) retention, in addition to activities relating to general social, emotional, physical, aesthetic, and cognitive growth.

Method: Ss attended one of four prekindergarten classes for two hours and forty-five minutes, five days a week. Two classes met in the morning and two in the afternoon. Children were generally grouped homogeneously with regard to program need. Each class was composed of 25 Ss guided by a teacher and two teacher aides (a child: adult ratio of approximately 8:1). It was the teacher's responsibility to plan each child's individual daily work based on test results and classroom performance. At the end of the prekindergarten stage, Ss were entered into one of 26 classes in the University City school district. These classes were not under the control of E, and consisted of private and parochial schools in the local area, or public school kindergartens in surrounding communities. These classes met three hours daily and were composed of approximately 25 children with one teacher per class and no teacher aides. Teachers, however, were given personalized program recommendations based on each child's individual assessment. For the purposes of the study, seven specific experimental groups were identified based on program need: (1) motor (EM); (2) auditory (EA); (3) visual (EV); (4) language (EL); (5) retention (ER);

(6) weak performance with all skills intact (EW); and, (7) strong performance with all skills intact (EI). Additionally, there were two control groups: Control with nursery school experience (Cn) and Control without nursery school experience (Co).

A total of nine months elapsed between pre- and posttests.

Assessment Indices:

1. Beery: Development Test of Visual-Motor Integration (VMI)
2. ITPA
3. PPVT
4. Gross Motor Observations
5. Three Dimensional Auditory Discrimination Test
6. Behavior Rating Scale
7. Metropolitan Readiness Tests, Form B

Results:

1. Posttest comparisons between experimental and control groups for both Phase I and II of the study showed that males showed a statistically significant difference favoring the experimental group on five variables: ITPA, L.Q.; Beery VMI; ITPA-Visual Motor Association; ITPA-Vocal Encoding; and, Total Motor Test and Gross Motor Observations.
2. Posttest comparisons for both Phase I and II for females showed significant differences favoring the experimental group on three variables: Beery VMI; ITPA-Vocal Encoding; and Total Motor Test and Gross Motor Observations.
3. Significant gain scores (posttest minus pretest) were found for males across both Phase I and II for three variables: ITPA, L.Q.; ITPA-Visual Motor Association; and ITPA-Vocal Encoding.
4. Significant gain scores were found for females across both phases of the study for six variables: ITPA, L.Q.; PPVT, I.Q.; Beery VMI; ITPA-Vocal Encoding; ITPA-Visual Motor Sequencing; and Total Motor Test and Gross Motor Observation.

Delivery: There does not seem to be a specific packaged curriculum; therefore, implementation at other locations may be difficult.

Comments: The authors note that at the end of the kindergarten year, differences between experimental and control groups did not reach a significant confidence level.

VI. Deutsch, M. The Deutsch model. Insitute for Developmental Studies, New York University, New York, 1968.

Orientation: The Deutsch model is based on three major premises:

1. The intellectual dificit caused by early cultural deprivation cannot be compensated for by typical middle-class nursery schools; they need more direct emphasis upon cognition than is provided for in programs based upon learning through play.
2. In order to overcome intellectual deficits there must be a carefully planned match between specific deficit and remedial measure.
3. The language handicap of children from disadvantaged homes is partially motivational. The child must want to do well in school.

Some of the goals are to have the child learn to focus on relevant stimuli, to place relevancies in proper perspective, to develop skills of auditory and visual perception and discrimination, and to verbally and motorically classify, sort and match ideas and objects in the environment. To achieve these goals, order and clarity are stressed because they facilitate learning.

Another major goal is the development of self-reliance, achievement motivation, and a positive self-concept. For the child, some of the goals are to demonstrate his ability to be relatively quiet and attentive, to be self-reliant, to treat equipment and peers with respect, to respond to verbal requests of the teacher, and to express his own needs verbally.

Another of the major assumptions on which the program is based is that some kinds of skills and abilities are basic to others. Also, that cognitive development proceeds by stages or at least from one level of functioning to another.

Curriculum: Four major areas of development designed to facilitate cognitive development are emphasized in the curriculum:

A. Language
   1. Vocabulary development
   2. General ease in self-expression leading to lengthy, meaningful verbalization

3. Greater exactness in sound discrimination
4. Precision in the use of language

B. Perceptual - direct, sensory skills
1. Develop powers of stimulus recognition
2. Develop powers of stimulus discrimination
3. Develop powers of stimulus differentiation

C. Conceptual
1. Learn basic physical concepts
2. Relate traits
3. Classify traits
4. Generalize about traits

D. Positive self-concept

Method: The room arrangement is perceptually clear and distinct in order to help the child focus on the curriculum. There are uncluttered arrangements of equipment and furniture in physically defined areas of the room. The classroom climate is dominated by a time orientation with routines clearly established.

Activities are defined so that they commence with the most rudimentary forms of skills and knowledge and proceed developmentally through succeeding levels of greater complexity. Steps within each sequence are short enough for the child so that he may proceed from element to element at the rate most comfortable for him. It is the teacher's responsibility to insure the child's learning of basic skills and information at each step of the way. It is believed that the more immediate feedback that the child gets to his response, the more impact on learning the feedback can have. Through the response from the materials or the teacher which gives the child confirming or corrective information, the child learns which track he is on and which stimuli he should focus on. In this way he receives reinforcement of prior learning and he receives affirmative or corrective response to his applications of learning.

It is also through feedback that the teacher learns how the child perceives his task, at what level he is operating, at what speed he is moving, and how effective her teaching is.

Feedback problems in group teaching situations, suggests to the author that a more individualized approach to the teaching-learning experience may be more profitable for certain kinds of learning.

Comments: There are a number of unique and productive techniques which have been worked out by Deutsch which help to carry out the goals he has outlined. Some of these are listed below:

1. Listening Centers. The teachers record stories on tapes and children can listen to their favorites on tape recorders in separate partitioned areas in the classroom while the teacher is elsewhere in the room. There are also supplementary tapes recorded by the teacher on which she asks questions about the story, pauses long enough for the child to respond, then gives the answer before asking the next question. Each child wears large, padded earphones; the novelty of them engages the child and forces his attention; the padding element eliminates peripheral noise which might distract him.
2. Language Master. This is another auto-instructional device which aids in building vocabulary and basic concept formation. It is analogous to a two-track tape recorder used in language labs. At the same time the teacher says, for example, "this is a pencil", a picture of a pencil goes through the machine.
3. Telephone. There are two in the classroom separated by some distance. This has been found to be a great aid to stimulating language. Children role play, imitate adults, and express themselves more audibly and distinctly.
4. Language Lotto. This was developed by Dr. Deutsch with Dr. L. Gotkin. It differs from standard games of lotto in that it can be played at different language and conceptual levels, ranging from nonverbal matching, to verbal matching or pictures requiring complex cognitive skills.
5. Quiet Work Time. This is a technique developed by Mrs. Fay Fondiller and Dr. L. Gotkin and has been extremely valuable in freeing the teacher to work individually with children and in helping the child and teacher focus on activities which stress cognitive development and skills. During this time all noise-producing activities are excluded and children, individually or in small groups, work on activities directly related to cognitive development and formal learning.

A more complete description of activities which have been found useful at the Institute for Developmental Studies may be found in a paper entitled "Games and Other Acitivities for Developing Language Skills."

VII. Early childhood education curriculum guide. Early Childhood Education Committee, Oak Ridge Schools, Oak Ridge, Tennessee, 1967.

Orientation: The purpose of this program is to promote preschool growth, advancement, and readiness for later formal learning.

Population: The target population was four-year-old black and white children from low-income families with poor home environments and little previous contact with the cultural mainstream.

Curriculum:

1. Language development
2. Perceptual-conceptual development
3. Motor development
4. Social development
5. Development of self-image

Method: The areas of curriculum skills were presented in small sequential steps to ensure a high percentage of successful activities for the learner. The environment was structured to ensure stability and predictability. In each class, Ss had freedom within predetermined limits. Skills were initially developed through direct physical involvement and manipulation; then through representation of objects; and finally through mental images of objects.

Language development was taught specifically with the Peabody Language Kit.

Assessment Indices: None listed.

Results: None.

Delivery: This study should be used only as a component or additional source material.

Comments: This study provides additional activities that might be incorporated into a full program.

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VIII. Engel, R. C. and others. Language development experiences for young children. Department of Exceptional Children, School of Education, University of Southern California, Los Angeles, California, 1966.

Orientation: The stated goals of the program include: (1) the development of responsive listening habits; (2) sufficient vocabulary to handle daily needs; (3) ability to communicate with classmates; (4) development of social skills for personal-social adjustment; (5) ability to contribute to discussions; (6) development of self confidence; and (7) ability to relate facts in a sequential, relevant manner.

Population: The program is directed specifically toward mentally-handicapped children and generally to all disadvantaged preschool children.

Curriculum: Explicit language development through: art, cooking, dramatic play, music, science, water play, story time, and trips.

Method: The basic strategy of the program was to permit each child to work alone or with others with a variety of materials. It is the major premise of the program that language cannot be taught purely as language but only in connection with other on-going activities. To facilitate this is a list of experiences, which have been grouped into 13 major areas, was provided to suggest suitable activities for the teacher to present to the children. These experiences were not designated as being at any given developmental or sequential level, however, as this decision was left to the teacher.

Assessment Indices: Developmental Progress of Infants and Young Children (provided in text).

Results: None.

Delivery: This study should be used only if incorporated into a full program.

Comments: The list of suggested activities might be incorporated into a full program as supplemental material.

IX. Engelmann, S. Teaching formal operations. In C. Bereiter, Acceleration of intellectual development in early childhood. Final Report. University of Illinois, Contract No. OE 4-10-008, Office of Education, 1967.

Orientation: The purpose of the study was to teach children how to solve problems requiring the use of hypothetical deductive reasoning. "Center problems" were used as representative of problems requiring formal operations for solution, because they require the formation and manipulation of propositions-about-propositions. In a "center problem" there is a logical or mechanical relation between two and only two members.

Population: The sample consisted of 10 preschool children (3-1/2 to 5-3/4 years of age), half of whom were culturally deprived Negroes and half of whom were relatively privileged Caucasians.

Curriculum: Cognitive.

Method: The behavioral objective -- solution of "center problems" -- was specified. Children were taught first root concepts, then basic propositions, and finally deductive chains. Although the steps were sequenced in order of increasing difficulty, the exact training procedures were not given. "The Ss were provided with all of the specific information needed to achieve the transfer. However, in transferring a reasoning pattern, it is necessary to modify it. This modification was not taught."

The training procedure was 20 minutes, five times a week, for 5-7 weeks. No firm termination procedure was adopted; a criterion problem was presented when the child appeared ready to solve it.

Assessment Indices: The Ss were given problems that required the combining of rules in chains of deductions (criterion) and problems that required conservation of liquid quantity.

Results:

1. Four of five children in the culturally privileged group and three of five children in the culturally deprived group correctly solved the criterion problem. All of the five-year-olds in both groups were successful.
2. Only one child passed the conservation task.

X. Fowler, W. The design of early developmental learning programs for disadvantaged young children. IRCD Bulletin (supplement), Vol. 3, 1A.

Orientation: The main problem in designing effective learning programs for disadvantaged children is the general lack of knowledge about how to define and implement an adequate learning situation. Most current preschool programs for the disadvantaged do not have well-designed and systematic approaches to instruction.

Population: Preschool children.

Curriculum: Developmental (cognitive) learning -- "sequence of encounters between the child and the environmental situation he cumulatively experiences. It is concerned not only with the total present stimulation and social situation of the child but also with his past history."

Method: Among the principles of designing a preschool program were the following four. A program should include (1) a continuous psychocognitive diagnosis and assessment of each child, (2) a structured, coherent, sequential approach to content area, (3) a focus on symbolic manipulation and the essential concept, and (4) active, physical manipulation of materials.

Comments: This articl 's important for program planners to consider carefully.

XI. Hart, B. M., and Risley, T. R. Establishing use of descriptive adjectives in the spontaneous speech of disadvantaged preschool children. Journal of Applied Behavior Analysis, 1968, 1, 109-120.

Orientation: The basis of the study was operant reinforcement theory. The investigation involved: (1) defining observable terminal objectives; (2) the use of descriptive adjectives during free play; (3) devising a method of recording and measuring important categories of spontaneous verbal behavior; and, (4) the manipulation of the consequences of the children's use of language, social reinforcement, and access to materials contingent on a specified form of verbal behavior.

Population: Fifteen black males and females from a lower class community, participating at the Turner House preschool in Kansas City, Kansas, were selected for the study. There were eight males and seven females. Mean PPVT I.Q. was 79.

Curriculum:

1. Verbal and food reinforcement of adjective-noun combinations.
2. Play materials contingent on correct usage of adjective-noun combinations.

Method: The preschool sessions were three hours long (8:30 - 11:30 a.m.) five days per week. The daily program included: breakfast, free play indoors, group time, and story time at the end of the morning. The free play periods were unstructured situations in which the children could interact with each other and with various play materials. Breakfast, group, and story time were teacher structured situations. During group time the teacher formally presented stimuli for identification and description to eight or fewer children. Children were called on individually and reinforced for correct responses with food snacks or praise. Initially, identification of pictures and objects, then description in terms of color, and finally, description in terms of number were required of all Ss until a criterial level was attained.

Samples of S's verbalizations in free play were taken 4 times a year. Within each category (color, number, size, and shape) separate behavioral counts were made for: (1) All adjectives of that category; (2) All adjective-noun combinations; and, (3) All new adjective-noun combinations.

There were 4 treatment phases: (1) baseline, (2) color naming in the group, (3) materials contingent on correct responses, and, (4) materials not contingent on correct responses. For the first 150 days all materials were freely available during free play periods. After this time use of these materials became contingent upon correctly using the right color-noun combination. After stable changes were noted in all children's spontaneous vocabularies, the contingency of naming colors to receive materials in free play was removed.

Assessment Indices: Behavioral counts.

Results: High interobserver reliability was obtained. The mean number of color-naming responses during baseline was 0.5 per sample hour. Mean color-naming responses during color-naming in the group was 1.8 per sample hour. When the contingencies were removed, the rate fell to 12.7 per sample hour. A similar profile was found for color-noun combinations.

Comments: The study cited above was the only full study of an on-going operant preschool program in which behavior modification techniques were utilized in such areas as: appropriate talking time, social skills, narration training, and imitation training. A more complete description of specific techniques and strategies can be found in:

Risley, T., Reynolds, N., and Hart, B. Behavior modification with disadvantaged preschool children. In Bradfield, R. (Ed.). Behavior modification: The human effort. Palo Alto: Science and Behavior Books (in preparation).

XII. Ireland, V. M. & Cox, F. M. "Evaluation of the Preschool Program." Atlanta Public Schools, Atlanta, Georgia, 1966-67.

Orientation: The purpose of this pilot prekindergarten project was as follows:

1. to provide compensating experiences for four-year-old children,
2. to develop further "Framework and Curriculum Outline for Prekindergarten", and
3. to provide training and consulting assistance to preschool teachers.

From the curriculum it is implied that this is a traditional preschool program.

Population: The Ss were four-year-old children in the prekindergarten program and kindergarten groups. The evaluation involved eight groups of Title I prekindergarten children, three of which were in the Educational Improvement Program (EIP), a sample of Title I kindergarten pupils, and a sample of non-Title I kindergarten pupils.

Curriculum: sensory perception, motor skills, social behavior, and aesthetic values.

Method: Each group consisted of 20 preschool children and three adults: teacher, teacher assistant, and teacher aid.

The curriculum content data was categorized and tasks to be accomplished in relation to each specified objective were indicated. There was six months of treatment between pretests and posttests.

Results:

1. PPVT revealed that the non-Title I kindergarten group ranked highest in I.Q. scores, the prekindergarten group next, and the Title I kindergarten group lowest.
2. CLI and SLI indicated that the achievement of the prekindergarten pupils in the areas of shape and color labeling was better than that of the Title I kindergarten pupils and as good as that of the non-Title I kindergarten pupils.

3. Significant pretest to posttest gains were made by the prekindergarten group on both AVSI (language performance as related to attention span) and AVAI (one type of reasoning).

Comment: The Framework and Curriculum Objectives Outline for Prekindergarten was developed 1967-68 and should be in fairly complete stage by 1970.

XIII. Locatis, F. and Smith, F. A. Performance of kindergarten children from low income families on selected concept categories. Paper presented at the annual California Education Research Association Meeting, Los Angeles, March 14-15, 1969.

Orientation: The Southwest Regional Laboratory is developing a program to teach concepts that are essential to learning in subsequent grades to kindergarten children. "In developing this Instructional Concepts Program, the Laboratory is attempting to determine what concepts children should know, and what concepts they have already mastered."

To determine what concepts children should know, in 1967 the Laboratory began to review three first-grade curriculum guides used in Southern California. All concepts assumed known to first graders that appeared in two of the three guides were considered. Those concepts not referring to specific objects (e.g., house, dog, tree, etc.) and not overlapping, were adopted for the program. The original list of concepts was revised into the present list on the basis of (1) suggestions from primary-grade teachers and curriculum specialists, and (2) individual assessment of kindergarten children on tasks involving use of the various concepts. The latest list has 86 concepts grouped into seven categories: color, size, shape, position, amount, time and equivalence.

Population: One hundred and eighty-one kindergarten children from low income families were tested in two schools in Southern California.

Curriculum: Concept Attainment.

Method: "To measure the degree to which kindergarten children already know the Program's concepts, an Instructional Concepts Inventory was constructed. Five concepts were randomly sampled from each of the Program's seven categories except 'time'... One test item was constructed for each of these concepts and an additional five items were constructed to test the conjunction of those belonging in different categories... The completed Inventory had a total of 36 items, each consisting

of a picture illustration of a concept and two distractors."

The Inventory was administered individually to the children. The testing time varied from 6 to 7 minutes for each child. Each child was asked to point to the illustration of the concept named by the examiner.

Results:

1. The corrected population mean is 17.36. (The mean for all classes was 23.57 of a possible 36, and the standard deviation was 5.69. Since a mean of 12 was possible by chance, corrections were made for guessing.)
2. The ranked uncorrected means for concept categories indicated highest performance on color and lowest performance on time concepts.
3. The mean for non-English speaking children was one standard deviation below the population mean.
4. A comparison of the ranked means of concept categories for the non-English speaking group and the population shows that they both tended to score highest and lowest on the same categories. The only difference in relative performance on categories seems to be with conjunction. Non-English speaking children's performance on conjunctive relative to other categories is lower than that of the entire populations.

Comments: Although this study does not include the curriculum for the Instructional Concepts Program, the approach to the curriculum development is briefly outlined.

XIV. Long, E. R., Jr. The effect of programmed instruction in special skills during the preschool period on later ability patterns and academic achievement. University of North Carolina, Cooperative Research Project No. 1521. Department of Health, Education, and Welfare, 1966.

Orientation: The purpose of this study was to determine: (1) if Binet I.Q.'s and patterns of ability as measured by the Primary Mental Abilities (P.M.A.) can be changed; (2) the effect of programmed discriminative training; (3) the persistence of any I.Q. changes; (4) the effect of origin level of I.Q. on changes in intellectual functioning; and (5) the effectiveness of the program on later school performance.

Population: Ss in this study were composed of white and black rural children in northern Orange County.

Curriculum: There were five training areas:

1. verbal skills
2. quantitative skills
3. science
4. perceptual
5. art

Method: Children were divided into three groups by race (2 x 3 design). The three training procedures were (1) kindergarten experience plus special programmed instruction; (2) kindergarten experience only; and (3) neither kindergarten experience nor programmed instruction.

Children in kindergartens with special programmed instruction received training on match-to-sample programs and presenters during the first three years of the program; and, in the fourth year, training on punch-tape controlled typewriters in conjunction with projectors and magnetic tape decks for verbal materials. The match-to-sample procedure involved making discriminations of increasing difficulty. The procedure basically followed the operant conditioning paradigms. Congruent with this approach, the programs were constantly revised during the first year to provide a

sequence with a low-error rate. In the experimenter's opinion, these qualified as programs: "Only in the sense that they presented the child with an orderly sequence of theoretically related slides and recorded messages."

Assessment Indices:

1. Stanford-Binet
2. Primary Mental Abilities Test (P.M.A.)
3. Stanford Achievement Test

Results:

1. In general, there was no specific benefit of kindergarten with programmed instruction over regular kindergarten on Binet I.Q. gains. White Ss receiving either kindergarten experience showed greater gains than Ss not receiving kindergarten experience both during kindergarten and at the end of first grade. Black Ss, on the other hand, did not benefit from either type of kindergarten experience. All kindergarten effects had disappeared at the end of second grade.
2. Analysis of P.M.A. Total Quotient scores indicated that no consistent effects were present for white Ss attending either kindergarten. With black Ss, however, P.M.A. scores were consistently higher for Ss receiving kindergarten experience both during kindergarten and over the first year of school. It was also found that black Ss who received programmed instruction consistently gained more than Ss who did not receive this instruction.
3. Results from highly specific achievement tests showed that both white and black Ss who had received kindergarten experience plus programmed instruction scored significantly higher than Ss receiving kindergarten without programmed instruction on letter and animal identification.

Delivery: Programmed instruction, in this case, requires sophisticated equipment and electro/mechanical programming ability by E.

Comments: The results of this study support the need for more specific criterion tests rather than global scores.

XV. Parker, R. K. Learning in children: Classification. Center for Advanced Study in Education, City University of New York, 1970 (mimeo).

Orientation: Based on the works of Piaget in classification and Gagne's cumulative learning models of instruction (task analysis and sequencing in hierarchical order), this research program is attempting to: (1) "develop an instructional program in classification and to examine the validity of a learning hierarchy approach to teaching classification skills to young children; (2) develop, extend and refine a set of classfication dependent measures which are conceptually and psychometrically sound; (3) examine the differences in performance on the multiple classification dependent measures as a function of age, sex, race, and socioeconimic status using a multiple classification instructional program; and (4) develop a method of economically and efficiently presenting the multiple classification instructional program to large numbers of children."

Population: Target population for this program is 5, 6, and 7 year-old children.

Curriculum: Classification skill (from identification of perceptual attributes to hierarchical ordering).

Method: A taxonomy of classification skills has been outlined and behavioral objectives leading to hierarchical ordering have been sequenced. In addition, an experimental instructional program for teaching multiple classification skills to young children has been developed and empirically evaluated. The following are studies that are currently being conducted on this project:

1. Instruction in Representation and its Effect upon Classification Skills (Parker & Levine).
2. Comparison of the Matrix and Overlapping Rings in Teaching Multiple Classification to Young Children (Parker & Ambron).
3. The Learning and Transfer of Double Classification Skills for Perceptual to Functional and and Abstract Attributes (Parker & Halbrook).

Five additional studies have been proposed which relate to the general goal of developing an optimal instructional program in multiple classification with each study building on the previous one. The first three studies are directly related to the goal of determining the validity of the hierarchical approach to instruction of multiple classification skills. These studies will lead to the second phase of the research program -- a systematic examination of the impact of the optimal instructional program on Ss varying in age, race, and socioeconomic status.

Results: None published; three unpublished papers are available.

XVI. Stendler, C. A Piaget-derived model for the preschool child. In J. L. Frost (Ed.), Early Childhood Education Rediscovered. New York: Holt, Rinehart and Winston, 1968, 530-544.

Orientation: The training program was based on Piaget's developmental theory and was specifically designed to foster acquisition of schemas in disadvantaged preschool children.

Population: Disadvantaged four-year-old children were used as the subjects.

Curriculum: The curriculum consisted of special cognitive training interspersed with conventional nursery school activities. The cognitive training included the following: one-one correspondence after physical correspondence is destroyed; relativity of perspective; conservation of continuous quantities; seriation activities; classification activities.

Method: The organization of the preschool program was not specified except as "conventional" nursery. Activities (sample) are indicated in "roughly the order they were presented."

Assessment Indices: Stanford-Binet.

Results: The 11 children in the program gained 6 points after 10 weeks.

Comments: "What we need for evaluation in depth are longitudinal studies, comparing the effects of different treatments upon comparable populations, and including assessment over a wide range of areas of development." (p. 543.)

XVII. Universal Education Corporation, Discovery Program.

Orientation: The Universal Education Corporation uses a behavioral approach in teaching 35 skill areas with a heavy cognitive emphasis.

Population: The target population are children from 2½ to 6 years of age.

Curriculum: The curriculum was divided into two parts: (1) classroom "instruction" lasting two hours per week with half of the time devoted to autotelic environment and half of the time devoted to planned multimedia instruction. The classroom time is also used to make behavioral observations to help plan future instruction. (2) parent "instruction" is the foundation of the learning program through "take-home materials" (educational toys and booklets) designed to teach in the 35 skill areas. These areas are: observing, listening, expanding vocabulary, improving memory, recognizing characteristics, classifying, solving problems, predicting and testing, touching, understanding shapes, knowing color, speaking, following directions, counting, understanding numbers, telling time, measuring, sticking to a task, understanding rules, tasting and smelling, finger dexterity, drawing, making and building, using tools, knowing the alphabet, relations with others, self-care and safety, understanding "what", understanding "where", understanding "when", understanding "why", understanding "how", understanding people, making sounds and music, and physical coordination.

Method: The children are given two hours of classroom activities per week. The program relies heavily on parent involvement and instruction.

Assessment Indices:

1. Discovery Skills Evaluation Instrument
2. Cincinnati Autonomy Test Battery
3. Binet

Results: None published.

Delivery: The program provides a self-instructional environment using the best of multimedia instructional material plus a staff which includes a Learning Director, a Learning Advisor, and Learning Aides. Take-home materials are provided for parent use.

Comments: The Discovery Program looks like one of the most promising approaches to preschool education and parent involvement. Since UEC is a private company they are in a position to contract with cities, school districts and states to deliver all or part of a Discovery Program. Contact Dr. Roy Stern.

Reference:

Discovery program learning staff handbook. New York: Universal Education Corporation, 1969.

IMPLICATIONS OF REVIEW

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This section will review the major problems with the current research in early education.

The current global research problems can be grouped under the following four headings: (1) conceptualization of programs, (2) operational statement of programs, (3) management of program, and (4) evaluation of programs. Regarding the conceptualization of the programs, very few preschool programs have been organized around a clear conceptual framework. Nearly every preschool program with the possible exception of the Montessori program attempts to effect "language" skills of the participants; however, only a few offer <u>any</u> conceptual analysis of language behavior to guide their curriculum development. When a conceptual or theoretical frame of reference existed for a language program (e.g., Peabody Language Development Kits) it was based on a dated model of psycholinguistic functioning. Even though many current theoretical issues in psycholinguistics seem remote from education, an important contribution to education will be made when educators draw from contemporary developmental psycholinguistics in constructing preschool language programs (see McNeill, 1970).

The cognitively based preschool programs also lack clear conceptual frameworks. The psychology of learning has offered preschool education a few leads and these have usually been difficult to translate from laboratory investigations to meaningful educational applications. Gagne's model of cumulative learning (1968) holds promise as a useful frame of reference, and this theoretical orientation is guiding the work of Frost and Rowland (Frost, 1968) in language development and Parker (Parker & Ambron, 1970; Parker & Danielson, 1970; Parker & Halbrook, 1970; Parker & Levine, 1970) in classification skills development. Piaget's ideas are beginning to influence preschool curricula (e.g., Sprigle, 1967; Stendler, 1968; Weikart, 1969) which focus on cognitive variables. Kamii's (Kamii & Radin, 1967) Early Education program is probably the best example of a clear Piagetian conceptual orientation.

The second general problem which plagues preschool education is that most programs do not have an operational statement of their curriculum. Literally hundreds of programs

were reviewed for this paper that did not have any written curriculum. This sad state of affairs characterizes most Head Start programs and reflects the distaste many early childhood educators have for specifying a curriculum at the preschool level. We believe that not only should a curriculum be clearly specified but that it should be organized to teach certain behavioral objectives.

The problem of management of the preschool program has been minimized by many investigators, but Weikart (1969) has written eloquently about the issues involved in organizing and managing a preschool program which may override the effects of the curriculum. Aside from the curriculum, he identified these characteristics of a program and staff model that may effect research results:

1. Program
   a. Involvement of the mother
   b. Focus on the child
   c. Focus on education
   d. Language in the classroom
   e. Staff expectations for the children
   f. Respect for the individual staff member
   g. Teachers' commitment

2. Staff Model
   a. Planning
   b. Team teaching
   c. Supervision
   d. Evaluation

Lastly, many programs avoid the above mentioned problems but fail on the task of properly evaluating the program. The following two topics related to evaluation merit a brief discussion: (1) "traditional" evaluation and (2) criterion performance evaluation.

By "traditional" evaluation we mean the traditional experimental design employing one treatment group and one control (or contrast group) where dependent measures are administered to both groups on a pretest-posttest basis. The major reference in the literature discussing problems associated with the traditional evaluation is a chapter by Joe Glick in Early Education (Hess & Bear, 1968). He discusses the following: "(1) a distinction between performance and

capability; (2) a distinction between process and achievement; and (3) considerations about the nature of developmental change."

If one chooses to use a traditional evaluation the problem of finding an appropriate dependent measure is difficult. Cazden (in Press) has written the most comprehensive paper on methods of evaluating preschool language programs. Additionally, the monograph edited by Brottman includes a chapter by Stern entitled "Evaluating Language Curricula for Preschool Children" (Brottman, 1968). Deal and Wood have reviewed the literature dealing with testing the early educational and psychological development of children (ages 3-6) which appeared in the February, 1968, Review of Education Research., and Kamii (1968) has written an important document on evaluating pupil learning in preschool education.

In spite of the disadvantages (e.g., time, money, and talent required) of the criterion performance approach to evaluation, we favor it over the traditional evaluation for many reasons. Briefly, the criterion performance approach specifies the behavioral objectives and designs "tests" to measure whether or not the behavioral objectives have been attained. Bereiter and Englemann (particularly Engelmann writing in Conceptual Learning, San Raphael: New Dimensions Publishers, 1968) epitomize the behavioral objectives approach to preschool education. The best single paper describing this approach is a chapter by Lindvalland Cox in Educational Evaluation: New Roles, New Means (NSSE Yearbook, 1969). The advantages of this approach to curriculum and evaluation are as follows: (1) it requires a specification of the sequenced behavioral objectives of the program and instructional materials to teach each objective, (2) it includes provisions for placing each pupil at the appropriate point in the curriculum, (3) it enables one to evaluate the "success" or "failure" of a program in terms of the program's specific goals rather than by employing some general measure such as an I.Q. test which is insensitive to the program's content, (4) it enables one to evaluate the individual components of the program as well as the total program, (5) it provides an opportunity for constant monitoring of the program's impact, and (6) it can suggest transfer tests (near and far) which enable one to determine if a program has any general impact beyond its specific content.

Perhaps several examples will illustrate some common problems with traditional evaluation and the merits of a criterion performance approach to evaluation. The most common problem is that the traditional dependent measures are insensitive to the program's content. Adkins (1968) developed some very interesting extensions of the Bereiter and Engelmann language program but found no differences between her experimental group and a Head Start comparison group on the PPVT and the ITPA. It would have been much better if she had developed criterion performance referenced dependent measures to use along with the traditional dependent measures. Long (1966) found that his experimental group did not differ from his control group on traditional measures (e.g., Binet) but important differences were observed when the two groups were compared on tests designed to measure his behavioral objectives. Weikart (1969) recently completed a comparative study of three preschool curricula (Bereiter & Engelmann, Cognitive and Unit Based) and found no differential effects of the program's content on the Binet and the Leiter even though all three groups posted impressive pretest-posttest gains. While he provides some very convincing reasons to explain the lack of a differential impact on these measures (e.g., the common denominators across all three programs), we feel that his selection of dependent measures greatly minimized the possibility of finding any differential impact. Again, it would have been better if he had selected criterion performance measures which were reflections of (1) the common behavioral objectives across programs and (2) the unique behavioral objectives within a program plus these more global traditional measures of ability.

In passing, seven additional groups of researchers should be mentioned whose work reflects a criterion performance orientation in their evaluation: (1) Barbra Etzel (1968) at the University of Kansas, (2) Sid Bijou at the University of Illinois, (3) Hooper and Marshall at West Virginia University, (4) Ron Parker at the City University of New York, (5) the Children's Television Workshop, (6) the Southwestern Educational Development Lab and (7) Constance Kamii at Ypsilanti Public Schools.

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APPENDIX A

APPENDIX A:

ABSTRACTS OF RESEARCH RELATING TO SPECIFIC PRESCHOOL PROGRAMS.

1. Academically Oriented Preschool
2. Ameliorative Program
3. Early Childhood Education Learning System
4. New Nursery School
5. Peabody Language Development Kit

ACADEMICALLY ORIENTED PRESCHOOL

Reidford, P. and Berzonsky, M. Field test of an academically oriented preschool curriculum. Paper presented at AERA Convention, New York City, February, 1967.

Introduction: This experiment sought to test the findings of Bereiter and Engelmann in a Head Start setting.

Method: Two classes, each of 24 children ranging in age from 3-8 to 5-7 selected according to Project Head Start criteria, attended preschool classes for 2½ hours, one group in the morning and one in the afternoon, five days a week. These Head Start children were instructed in the Bereiter and Engelmann language, arithmetic, and reading curricula for a period of approximately six months.

All of the children were given Form L-M of the Stanford-Binet Intelligence Test from two to ten weeks after the program began. A posttest Stanford-Binet was administered to all of the children 23-25 weeks after week 10 of pretesting sessions. One year after the program began, two subtests of the ITPA Auditory Vocal Automatic and Auditory Vocal Association were administered to 38 of the 48 children. At this time, the subjects had not only had the eight-month preschool experience but also had had a two-month summer program based on the Bereiter-Engelmann method, and a one month kindergarten experience.

Results: Generally, results were similar to but less dramatic than those reported by Bereiter and Engelmann (1966).

1. The children showed a significant mean gain of 6.4 points on the Stanford-Binet, which brought them from 95.7 to 102.1.
2. The higher the initial I.Q., the greater the gain was in I.Q.
3. Analysis of ITPA subtests revealed that the children were functioning at realistic levels for their ages. At a mean chronological age of 5-3, the children obtained a mean score of 5-2 on the auditory-vocal-automatic and 5-3 on the auditory-vocal-association tests.

Comments: These results indicate that a long term exposure to the Bereiter-Engelmann preschool curriculum not only raises I.Q. levels, but also, and more importantly, stimulates development in reasoning ability, and in grammatical usage and understanding. The authors also recommend that short-term programs for the disadvantaged should be replaced exclusively by long-term programs which extend their methodologies up through the early elementary grade.

AMELIORATIVE PROGRAM

Karnes, M. B., Hodgins, A. S., Teska, J. A., and Kirk, S. A. Research and Development Program on Preschool Disadvantaged Children. Final Report. University of Illinois, Contract No. OE 6-10-235, Office of Education, 1969.

Study 1. The effects of five preschool interventions: Evaluations over two years.

Introduction: This study was designed to evaluate the effects of five preschool interventions.

Method: The Ss were 75 disadvantaged 4 year-old children from Champagne-Urbana in five class units of 15 each. Children attended daily lessons of 2¼ hours for between seven and eight months. Ss were stratified by race, sex, and I.Q. The five programs are as follows:

1. Traditional -- Promotes personal, social, motor, and general language development. Uses incidental learning.
2. Community-Integrated -- Stressed socio-economic integrations and followed similar routine to the Traditional program.
3. Montessori -- Presented a structured environment in the sense that the manner in which the child interacted with the materials was prescribed.
4. Ameliorative -- (See Karnes program as previously defined)
5. Direct - Verbal -- Presented intensive oral drill in verbal and logical patterns.

During the kindergarten year, children in the Montessori, Traditional, Community-Integrated and Ameliorative were

entered in a public kindergarten. (The Ameliorative group also received one hour of a supportive Ameliorative program in the afternoon.) The Direct Verbal group continued in their experimental program.

The assessment indices were: Stanford-Binet, ITPA, PPVT, Frostig Developmental Test, Metropolital, and C.A.T.

Results (End of preschool year):

1. The Ameliorative and Direct-Verbal groups made a mean gain of 13 points on the Binet.
2. The other 3 groups made gains of 5 to 8 points on the Binet.
3. On the 3 ITPA subtests which showed the greatest deficit, the Ameliorative group removed the deficit from all three, the Direct-Verbal from two of the three, (the Traditional groups made similar gains), and the Community-Integrated and Montessori made no gains.
4. There were no differences on the PPVT.
5. The Ameliorative group scored significantly better than the other four groups on the Frostig.
6. On the Metropolitan, the Ameliorative and Direct-Verbal were significantly better on number readiness.

Results (End of kindergarten year):

1. Only children in the Direct-Verbal group made significant gains (6 points) on Binet I.Q. The other four groups basically maintained the gains made in the first year.
2. The Direct-Verbal group was the only group that demonstrated a significant increase in language scores during the second year.
3. On the Frostig, the Ameliorative group continued to make modest gains, the Traditional group made no gains, the Montessori and Community-Integrated groups made substantial gains, and the Direct-Verbal group closely approximated the scores of the Ameliorative group.
4. The Ameliorative group scored significantly higher than all others on the Metropolitan Readiness Test.

Study 2. A follow-up of three of the five preschool interventions: Evaluations over three years.

Introduction: Children in the Ameliorative, Direct-Verbal, and Traditional groups were followed up after one year of public elementary school to determine the effectiveness of the three preschool programs on first grade performance (or conversely, the effect of instruction in first grade on gains made during preschool and kindergarten).

Results:

1. The Ameliorative and Direct-Verbal groups scored significantly higher than the Traditional group on the California Achievement Test.
2. The Ameliorative and Direct-Verbal groups were significantly higher than the Traditional group on the California Arithmetic Test.
3. There were no significant differences between groups on Binet I.Q.
4. There was no significant difference between the three groups on ITPA language scores.
5. There were no significant differences between groups in visual perception.

Study 3. Earlier Intervention: Effects of the Ameliorative program initiated with three-year-old children and maintained for two years.

Method: Ss included the four-year-old children in the previous study and added a group three-year-old disadvantaged children. Because the Ameliorative program was designed for four-year-old Ss over a one-year time span, certain changes were required to modify it for three-year-olds. These changes included slower presentation of material and introduction of concepts at their simplest levels.

Results:

1. There were no significant differences in progress made by the three-year-olds during one year and that made by the four-year-olds in one year on any component of the test battery.

2. There were no significant differences after 2 years between children who began the program at three years of age and those who began the program at four years of age, indicating that doubling the length of intervention with apparently appropriate accommodations had no appreciable impact on performance variables.

Study 4. The impact of at-home instruction by mothers on performance in the Ameliorative preschool.

Introduction: It was hypothesized that children whose mothers worked with them at home would make additional progress over children merely receiving the Ameliorative program.

Method: Ss were drawn in a similar manner to previous studies. Mothers of children in the preschool were provided materials for their children to work with at home.

Results: There were no significant differences between groups with and groups without mother involvement.

Study 5. Implementing the Ameliorative program with paraprofessional staff.

Introduction: The study focused on the potential effectiveness of using paraprofessionals to implement the Ameliorative program. Four class units participated. Two were taught by professionals, the third by adult paraprofessionals, and the fourth by teenage paraprofessionals.

Method: Used same procedure as above studies. A supervisory teacher assumed full responsibility for in-service training of paraprofessionals. This was done to ensure that they implemented the same as the professionals.

Results:

1. Although there was a slight superiority on the dependent measures of children taught by professional staff, these differences were not significant.
2. Adult paraprofessionals were more able than teenage paraprofessionals to become involved in responsible implementation of the program.

Study 6. The effects of the Ameliorative program with a class of low I.Q. children.

Introduction: In the third year of the study a surplus of low I.Q. Ss had been accumulated. These were Ss who had not been included in the previous study.

Method: Evaluation of results was based on gain scores since no control group was available.

Results:

1. The group showed a gain on Binet I.Q. of 21 points. No child made less than a five point gain and 80% of the children made gains of 15 or more points.
2. ITPA pretests were invalid since no child was able to perform on four of the subtests and nine were below norms. On the second test, however, with the exception of the Auditory-Vocal subtests, nearly all children scored within the normative range.

EARLY CHILDHOOD EDUCATION LEARNING SYSTEM

Demonstration and training project in early childhood education for migrant children. Annual Evaluation Report 1968-69. Southwest Educational Development Laboratory, U.S. Office of Economic Opportunity.

Study 1.

Introduction: "The Early Childhood Education Learning System was envisioned as an integral part of a total educational development system for the migrant child. The systematic instructional program would include staff development and parent-school-community involvement components. It would also capitalize on the migrant children's native language (Spanish) and their travel experience." The objectives specified in the report were:

1. "To design and pilot test an instructional system for three-and four-year-old migrant children and to refine the program in light of the information from evaluation;

2. To design, pilot test, and refine a Parent-School-Community Involvement Component as an integral part of the Early Childhood Learning System for preschool migrant Mexican-American children;
3. To conduct a continuing process and product evaluation effort directed toward evaluating each phase of the system development process as well as the education.

Method: Ss were 98 three- and four-year-old children selected for participation in the Early Childhood Education Learning System from among the three- and four-year-old migrant children eligible for Head Start. For the comparison 55 three-year-olds and 56 four-year-old nonmigrants were chosen. This "availability sample" included children from three Day Care Centers.

The children in the Early Childhood Education Learning System attended classes from 8:30 am to 1:30 pm. There was a child-adult ratio of 8:1. The curriculum consisted of the following: (1) an enviornment for learning, (2) selected educational experiences, (3) development of the child's ability in his native language, and (4) development of the child's ability to use English as a second language.

The Day Care Centers conducted programs which closely resemble the traditional nursery school and activities were scheduled from 7:30 to 3:30.

The Ss were assessed on the Leiter International Performance Scale, Preschool Attainment Record, Child Performance Checklist in a pretest-posttest evaluation.

Results:

1. "Children of migrant Mexican-American parents of low socio-economic background are more educationally handicapped than are children of nonmigrant Mexican-American parents of similar economic background. The difference of mean scores of the two groups on the pretests of the Preschool Attainment Record was statistically significant."
2. "The gain in developmental level of migrant children who participated in the Early Childhood Education System was significantly higher than the gain of the non-migrant children who participated in a regular day care system. This finding is supported by an analysis of the pre-post differentials on the Preschool Attainment Record."

3. "In general, students who had teachers who scored high on the Minnesota Teacher Attitude Inventory produced higher total scores on the PAR than did students who had teachers who scored lower on the Inventory."
4. "Parents who participated in a planned program of activities scored higher on a quantified schedule ascertaining attitude and behavior in relation to their child's education than did parents who did not participate in such activities."

EARLY CHILDHOOD EDUCATION LEARNING SYSTEM

Final Evaluation Report 1968-69. Southwest Educational Development Laboratory.

Study 2.

Introduction: This study reports the comparison of the effects of three preschool intervention programs on economically deprived three-year-old Mexican-American children in San Antonio, Texas.

Method: 16 three-year-old children (Group T_1) were in the San Antonio Urban Education Development Center (SAUDEC) and were compared with 15 three-year-old children (Group T_2) of parents who, through SAUEDC, received a special Parent-School-Community Involvement treatment program intended to encourage parental action to foster child development. Also, for further comparisons, 19 children of similar background -- age three, of Mexican-American parentage, and of the same socioeconomic status -- from three San Antonio Day Care Centers were studied (Group T_3). The curriculum for the SAUEDC preschool program was the Early Childhood Educational Learning System.

"The SAUEDC evaluation staff administered to each of the three groups of children a test battery of three pretest and posttest instruments: (1) the Leiter International Performance Scale, (2) the Peabody Picture Vocabulary Test (Form A) in English, and (3) the Peabody in Spanish. In addition, the staff administered to Groups T_1 and T_3 the Laboratory-developed Child Performance Checklist (Level 3); and the teaching staff administered to Group T_1 the Preschool Attainment Record (PAR)."

Results:

1. "All three groups at pretest on standardized development instruments which required the use of language in test administration scored substantially below national norms."
2. "All three groups at pretest on standardized development instruments which required the use of language in test administration scored substantially below national norms."
3. Group T_1, the pupils taught with the Laboratory developed program, achieved a statistically significant greater gain on each test than either Group T_2 or Group T_3.

NEW NURSERY SCHOOL

Nimnicht, G., Meier, J. & McAfee, O. "Research on the New Nursery School Part I, A Summary of the Evaluation of the Experimental Program for Deprived Children at the New Nursery School Using Some Experimental Measures." An Interim Report, Colorado State College, Greeley, 1967.

Introduction: To evaluate the relative success of the New Nursery School.

Method: Ss 3 and 4 year old environmentally deprived Spanish surnamed children.
3 and 4 year old middle class children comparable group of kindergarten children from same background as the New Nursery Children were selected when the children who attended the New Nursery School entered kindergarten.

Refer to Method section of New Nursery School in the body of the paper for procedure purposes.

Assessment Indices: Baseline Data - Peabody Picture Vocabulary, Stanford Binet, Brown - IDS Self-Concept Referent Test, Metropolitan Reading Readiness Test, Caldwell Preschool Inventory, Cincinnati Autonomy Test Battery, The "C" Test, Children's Categories Test.

Main Results:

1. The Brown - IDS Self Concept Test revealed that the children who attended NNS had fewer negative responses than a comparable group.
2. The NNS children when tested on the Metropolitan Reading Readiness Test obtained mean scores at the 70th percentile while a comparable group had mean scores at the 30th percentile.
3. When Caldwell's Preschool Inventory was administered to the NNS children the results showed that the four-year-old children who were completing their second year at school (NNS 4-2's) scored better than four-year olds who were completing their first year at the school (NNS 4-1's) and the 4-1's scored better than the three-year-olds (NN 3's). The NNS mean total score on the test was at the 5 percentile (norms based upon children in Headstart programs).

PEABODY LANGUAGE DEVELOPMENT KIT

Study 1.

Keehner, E. A comparative study of linguistic and mental abilities before and after a development-remedial language program with mentally retarded children. Unpublished M.A. thesis. Madison, Wisc.: University of Wisconsin, 1966.

Introduction: Keehner investigated the effectiveness of the experimental edition of Level #P of the PLDK with a group of mentally retarded children.

Method: A group of 29 mentally retarded children in residence in a school in Wisconsin were given seven months of training with PLDK, Level #P. Their performance on the ITPA before and immediately after the program of instruction was compared. Before the program all children fell in the M.A. range of three to five years and had I.Q. scores which generally clustered around 50. The total group was divided into three subgroups on the basis of their level of placement in the school program.

Results: The mean language age gain scores on the ITPA after seven months of training were 10.2, 14.2, and 14.0 months for the adjustment, prekindergarten, and kindergarten groups respectively. The man gains for the total group on the nine ITPA subtests ranged from a low of 8.8 months (Auditory-Vocal Automatic and Auditory-Vocal Sequential) to a high of 30.5 months (Visual Motor Sequential).

Study 2.

Morris, S. K. Results of a study using the Peabody Language Development Kit: Level #P, Experimental Edition. Unpublished M.A. thesis. Nashville, Tenn.: Vanderbilt University, 1967.

Introduction: Morris conducted a study of the PLDK, Level #P, at a day care center for four- and five-year-old children. Of her two groups, one group received only the typical program of day care centers and one group received the day care center program in addition to the PLDK.

Method: The 25 children in the experimental group received the usual day care center program for four- and five-year-old children and the experimental version of the PLDK, Level #P. The 28 children in the control group (also four- and five-year-olds) received only the usual day care center program offered in the Nashville community. Both groups received pretest and posttests before and after the seven months of training. The groups were compared on the Peabody Picture Vocabulary Test (PPVT), the Stanford-Binet Form L-M (S-B), the Illinois Test of Psycholinguistic Abilities (ITPA), and the Test of Grammar adapted from Berko (1958).

Results: After the seven-month treatment period, a comparison of gain scores on the Binet from pre- to post-testing revealed an increase of 9.6 points in the experimental group and a loss of 2.3 points in the control group. The changes in PPVT performance were +12.0 and +7.8 I.Q. points for the experimental and control groups respectively. On the ITPA the experimental group gained an average of 7.2 months while the control group gained an average of 3.9 months in language age. The experimental group made the greatest gains on the subtests for Visual-Motor Association (+23.4 months), Auditory Decoding (+16.8 months), and Auditory-Vocal Association (+12.8 months).

They showed regression in Auditory-Vocal Sequential (immediate auditory memory for digits). By contrast, the control group showed regression in four of the nine subtests: Vocal Encoding (-5.8 months); Motor Encoding (-3.95 months); Auditory Vocal Automatic (-5.1 months,; and Visual Motor Sequential (-1.5 months).

Morris analyzed more extensively three of the nine subtests of the ITPA - Auditory - Vocal Association, Auditory-Vocal Automatic, and Vocal Encoding. She also used the Test of Grammar as a posttest and correlated the scores of the Grammar test with the three ITPA subtest scores. Prior to the program, both experimental and control groups were retarded in language age on the three subtests. The experimental group showed marked improvement after the program in Auditory-Vocal Association but decreased in performance on the other two subtests. Neither group showed improvement on the Auditory-Vocal Automatic subtest, which assessed the ability to apply grammatical rules, and both performed poorly on the Grammar Test.

In the final rewriting of Level #P, heavy emphasis was therefore placed on activities to promote positive changes in syntactical and grammatical aspects of language.

Reference:

Berko, J. The child's learning of English morphology. Word, 1958, 44, 150-177.

Study 3.

Parker, R. K. The effectiveness of special programs for rural isolated four-year-old children. Final Report Grant No. OEG-4-9-190018-0030-057. Office of Education, U.S. Department of Health, Education, and Welfare, 1969.

Introduction: The objective of this study was to develop and evaluate two programs for providing preschool education to rural four-year-old children. The effectiveness of a structured psycholinguistically based preschool curriculum (Peabody Language Development Kit, Level #P) was compared with the effectiveness of a program offering general cultural enrichment experiences. The programs were presented through use of a mobile laboratory and paraprofessionals.

Method: Three groups of 8 four-year-old children participated in preschool programs. Group I - white, middle class (by local standards) children - received a general enrichment curriculum (GE) consisting primarily of films with follow-up or supplementary activities. Groups 2 and 3 - black, disadvantaged children - received instruction with the PLDK, Level #P. Groups I (GE) and 3 (P9) received four hours of preschool a week for 9 months. Group 2 (P3) received four hours of preschool a week for only 3 months. Each child in the treated population was matched with an untreated control child with respect to age, race, sex, and socioeconomic status.

The "Readimobile" stopped at locations proximate to the residences of the children. Two paraprofessionals, indigenous high school graduates, were trained to use the PLDK and were taught the principles of behavior modification.

Five assessment instruments were administered to experimental and control groups after the completion of the programs: Stanford-Binet, Illinois Test of Psycholinguistic Abilities, Caldwell Preschool Inventory, Englemann Concept Inventory Scale, and Metropolitan Reading Readiness Test.

Results: The Binet, ITPA, and Caldwell were administered on two separate occasions, and the Ss in all groups scored significantly higher on the second administration of the measures. Therefore the scores of the second administration were used in subsequent analyses. There were no significant differences between groups on the Englemann or Metropolitan, so these measures were only administered once.

The P9 and GE experimental groups were superior to their controls on several measures. The P9 group scored higher than its control on the Binet, the ITPA, and the Caldwell, as well as on five subtests of the ITPA. The GE group's scores surpassed those of its controls on total ITPA, two ITPA subtests, and one Caldwell subtest. The finding that the P3 group did not score higher than its control group on any measures is easily explained by reference to the short length of time involved (total instructional time was only 48 hours).

A comparison of the P9 group with the GE and GE-C groups demonstrates the effectiveness of the PLDK, Level #P, in decreasing some of the well-documented differences between black and white children of different socioeconomic classes. On the total scores of the Binet and Caldwell there was no difference between the P9 group and the GE and GE-C groups.

On the total ITPA the P9 group was inferior to the GE group but not to the GE-C group (which scored higher than the P9-C, P3, and P3-C groups).

Parker has offered some constructive criticisms which would be valuable in future use of the Peabody Language Development Kit, Level #P, with four-year-old children.

APPENDIX B

APPENDIX B:
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